

Nudging voters to choose women

Evidence from Italy

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Abstract

In this thesis, I examine the impact of a new voting system: double preference voting conditioned on gender. In a context of proportional representation with open lists, the policy allows voters to cast up to two votes, one for a female candidate and one for a male candidate. This policy was first implemented in the 2013 local elections in Italy in municipalities with more than 5,000 inhabitants. In smaller municipalities voters may choose only one candidate.

I extend Baltrunaite et al. (2017) using a regression discontinuity design to investigate how the policy affects the share of votes received by women. While only a minority of voters effectively placed two preference votes (around 28%), I find that the new voting policy has increased the share of female candidates in municipal councils from around 20% to 34% (13.4 p.p.). The policy has not significantly increased turnout of male or female voters, nor has it raised the quality of elected councilors measured as their years of education. In addition, it has not had a significant impact on the share of female mayors.

If all voters used their second vote, votes for male and female candidates would be distributed equally: the share of votes received by female candidates would be 50%. I thus complement the analysis using a survey on political preferences and voting behavior to investigate voters' preferences and their use of the new policy. Around half (49%) of the participants to the survey (N=702) were unaware of the opportunity to use two preference votes in elections. Of voters surveyed, 70% perceived equal representation in the municipal council as very important. Lack of information, and not unwillingness to use second votes, could then be the reason behind the moderate impact the policy has achieved compared to its potential.

Keywords Electoral systems, gender, voting behavior.

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February 2019

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1 Introduction

Women are underrepresented in political organs in Europe. For example, in Italy, women represent 31% of parliament members and only 27% of ministers (Istat, 2017). This underrepresentation has been attributed both to self-selection of men and women into different career paths, and to the existence of voter and party bias (Esteve-Volart and Bagues, 2012; Júlio and Tavares, 2017).

The lack of women in top political positions constitutes a problem both in terms of equality and efficiency. Firstly, from an equality perspective, women represent around half of the population in most countries, but their political representation is well below their share of the population: this might be an issue because women might also have different policy preferences, which might not be effectively taken into account if they are underrepresented (Chattopadhyay and Duflo, 2004). Even in case women do not cater to different political needs and only target the needs of the “median voter”, therefore exhibiting similar policy preferences as men, they might have unobserved political skills which are not exploited in case they are discriminated against (Ferreira and Gyourko, 2014). From an efficiency perspective, underrepresentation is problematic if it stems from a lack of opportunity to succeed in a political career, instead of an active choice of women to stay away from the political path: by considering only a limited pool of candidates, competition for political posts is hindered as all resources are not taken into account for the selection, in turn perhaps lowering the quality of candidates elected (Esteve-Volart and Bagues, 2012).

The most common policy instrument used to increase female political representation has been the introduction of quotas that regulate the presence of men and women in candidate lists. In most European countries, there exist legislated gender quotas that apply to all parties, or quotas have been adopted voluntarily by the main parties (International IDEA and assistance, 2018). In proportional representation systems with closed lists, well-designed quotas can help to increase the share of women elected. An example is the “zipper system” adopted in Sweden, where female and male candidates alternate in the ballot (Besley et al., 2017). However, quotas may be less effective in open list systems where voters can choose among all candidates (Górecki and Kukołowicz, 2014).

Italy introduced in 2013 an ingenious new system to increase the share of women in municipal councils in a context of open lists with proportional representation. The new voting system enables voters to cast up to two preferences votes, one for a male candidate and one for a female candidate. This new system has been implemented in local elections in municipalities with more than 5000 inhabitants. In smaller municipalities the previous system remained in place: voters may cast only one preference vote. The objective of this thesis is to better understand this system’s impact and

voters' behavior within it.

Previous work by Baltrunaite et al. (2017) using data from elections held between 2013 and 2015 has shown that the new electoral system increased the share of votes received by women from about 20% to 34%. However, it is still unclear (i) which element of the new system explains this impact – whether it is the availability of a second vote, or the gender restriction – and (ii) why the increase in the share of votes received by women has not been larger. I extend analysis from Baltrunaite et al. (2017) using data from elections held between 2016 and 2018. I find that the new system has increased the share of elected female councilors from 20% to circa 34% (13,4p.p), but that it has not significantly affected the quality of elected politicians, nor turnout of male or female voters or mayors. Based on the confidence intervals of estimates, the effect on quality of elected politicians is more likely to have been slightly positive, while the impact on female mayors is more likely to have been slightly negative. However, there is no clear discontinuity at the threshold in these effects, compromising the causal interpretation.

Under the new system, if all voters use the second available vote, votes to male and female candidates would be distributed equally. However, the increase in number of votes per voter upon implementation of the policy suggest that only 2 out of 10 voters use the second vote: voting theory proposes this might be related to a strategic, expressive or rationally ignorant voting behavior, assuming voters are aware of their opportunity to use the second vote. I therefore conduct a survey that provides novel information on individuals' preferences and use of this system. Survey results confirm that the use of double preference vote has been very limited (28% of surveyed voters used two votes), but mostly because almost half (47%) of the participants were not aware of the presence of the policy in their municipality, and the hypothesis linking strategic behavior to the results is thus discarded. While there has been a slight increase in the use of preference votes for the municipalities that have voted twice under the new system, this increase has been slow. At the same time, survey results suggest that voters perceive equal representation as important (4 on average on a scale of 5, $N=702$), and do not actively oppose the policy. The unexploited potential of the policy therefore creates interesting opportunities for future research: predicting the behavior of uninformed voters based on the behavior of informed ones suggests that informing all voters of the existence of the policy would increase the number of preference votes used by voters from 0.8 to 1.03 votes per voter, meaning additional two out of ten voters (23%) would take up the second vote. As a consequence, the share of votes received by women would increase from 39% to 43%.

This paper is structured as follows. First, I provide an overview of the institutional framework and electoral system in Italy to introduce the new voting system.

Then, I provide a brief theoretical framework which might help understanding voting behavior from a strategic, expressive and "rationally ignorant" perspective: this section introduces the hypotheses that are tested in the empirical analysis part that follows. In the empirical analysis section, I describe the data, the regression discontinuity methodology, as well as the survey; presenting results from both. In the end, I discuss these results and provide an introduction to the opportunities for future research that they present.

2 Institutional framework

2.1 Municipal elections in Italy

Local administration in Italy is composed by three organs: the mayor, the municipal council and a local executive called Giunta Comunale. Municipal elections are used to determine the mayor and members of the municipal council, whereas the executive committee is nominated by the mayor among members of the council.

Local elections are held in each municipality every five years. For historical reasons, not all elections are held at the same time: different groups of municipalities vote during different years. For instance, 762 municipalities held elections on 10 June 2018, 1,009 municipalities went to the polls in 2017, and so on. In total, there are more than 8,000 municipalities in Italy. Elections are organized through an open list system with proportional representation. The share of votes received by each party decides the allocation of seats across parties and, within each party, candidates are allocated to seats based on the number of preference votes obtained. The number of council members elected depends mainly on the population: the smallest municipalities (less than 3000 inhabitants) generally elect 10 municipal councilors, while the largest can have up to 48.

Traditionally, the number of elected female candidates has been relatively low. In 2012, around 21% of municipal councilors were women. In 2017 the elected women councilors represented 30.8% of all councilors, while only 14% of mayors were women (Andreuccioli, 2018).

2.2 Voting

Italian voters participating in municipal elections before 2013 could choose to place at most one preference vote for a councilor candidate and/or vote for a list. Since 2013, voters residing in municipalities with more than 5,000 inhabitants can cast up to two preference votes for candidates, at the condition the candidates have a different gender. Municipalities below the threshold have kept the old voting system, using only a single preference vote. Double preference voting was introduced in municipal elections for the first time in 2013, through law 215/2012. The objective of the new system was to improve equal gender representation in municipal councils, after other measures, including gender quotas on party lists had not delivered the expected result in terms of candidatures of women politicians or representation in municipal councils.

Previous to the double preference vote policy, quotas on party lists were adopted between 1993 and 1995. These quotas had the same requirements as the quotas introduced with the policy in 2013: candidates of a single gender could not represent more than 2/3 of candidates in a certain party list. The penalty for non-compliance with the requirement was exclusion from elections.

In 2009, the region of Campania decided to conduct a pilot the new double preference voting system in the 2010 regional elections. The implementation of the policy in these elections led the share of women in the regional council to double: from 7 women out of 53 councilors in 2005 to 14 women out of 60 councilors in 2010. The estimate of use of the double preference vote in these first election was 15.2% of voters. The success of this trial led to the extension of the policy in municipal, regional and European elections thereafter, although the latter have more than two candidates available for votes.¹

2.2.1 Voting in municipalities with less than 5,000 inhabitants

In municipalities with less than 5,000 inhabitants, the voter can cast a preference vote for one candidate at most. This means the voter can either: (a) cast a vote only for a list of candidates, (b) cast a vote only for one candidate in a list of candidates; (c) cast a vote for the list and one candidate. The voter selects the candidate by writing name and surname on the ballot (Figure I). The vote for a mayor candidate is cast by voting for a specific party.

¹For a more detailed description, see Legnante et al., 2013. The estimations and data referred to in Legnante et al. are based on data from the Istituto Cattaneo



Figure 1: Electoral ballot in municipalities with less than 5000 inhabitants.

2.2.2 Voting in municipalities with more than 5,000 inhabitants

Municipalities with more than 5,000 inhabitants enable voters to cast up to two preference votes. There are several combinations available to the voter. First, the voter can choose only to vote for a list. Second, the voter can choose to vote for both list and up to two candidates belonging to the same list: the voter can choose just one candidate, or two candidates, given the candidates chosen have different sex. In case the voter selects two candidates of the same gender, her second vote will be discarded. Finally, the voter can still choose to cast only one preference vote. The ballot is illustrated below in figure 2. There is no prompting on the ballot or in the electoral cubicle concerning the electoral rule, i.e. no reminders of the correct way of voting under the system.



Figure 2: Electoral ballot in municipalities with more than 5000 inhabitants.

2.3 Administrative elections of June 2018

On Sunday, 10 June 2018, municipal elections were held in Italy. The elections covered 760 municipalities, of which were 20 main municipalities (Capoluogo di provincia). In total, the first round of elections covered a population of 7,706,017 inhabitants. The 2018 elections were the fourth elections since the implementation of double preference voting.

In municipalities where a clear majority could not be achieved by any mayor candidate, a second round of elections to elect the mayor was held on the 24 of June, 2018. 76 municipal administrative units held a second turn of elections to elect a

mayor. These municipalities account for a total population of 3,301,924.

2.3.1 Use of preference votes in elections

The working of the policy depends on the extent to which people select individual candidates in their vote. The inclination of people to use preference votes can be calculated through the preference index score, which measures the average amount of preference votes given by a voter in a certain municipality compared to votes available. The index is calculated by dividing the observed number of preference votes cast by voters (total number of votes) to the number of votes available to voters at maximum (with double preference voting, the maximum amount is two preference votes per voter). The higher the index measure is, the higher the number of preference votes cast by voters is. The average preference index for a sample of 20 municipalities participating in municipal elections in 2018 was 0.44. In terms of votes per voter on average, this means 0.8 preference votes per voter in the large municipalities going to the polls in 2018.²

The use of preference votes has not changed significantly in elections since the implementation of the new voting policy (CISE, 2012). The policy itself had determined an increase in preference votes, which increased voters per voter from 0.6 to around 0.8, implying around 2 out of 10 voters use the double vote, if the whole increase can be attributed to the policy (Baltrunaite et al., 2017). What persists across years is the regional variation in the number of preference votes used in Italy, and generally there are more candidates running for elections in municipalities of Southern Italy. The South of Italy presents a larger share of preference votes given to candidates compared to Northern Italy. Besides geographical variation, voters of specific parties also tend to use more preference votes compared to others. For example, voters of left-wing parties tend to use more preference votes compared to right-wing party voters (Rombi, 2016).

3 Literature

3.1 Why are women underrepresented in politics?

Despite a consistent effort in implementation of policies to promote equal participation in politics, there are still many women missing from representative political

²The preference index data was provided by Stefano Rombi (Università di Cagliari) for the subset of the 20 main municipalities voting in 2018, therefore it represents mainly the largest municipalities going to the polls.

organs. From an equality perspective, this absence is problematic because by not participating in political decision-making in first person, women are not able to advance policies which are beneficial for other women, who represent around half of the population in most countries (Chattopadhyay and Duflo, 2004).

Even in case women do not cater to different political needs and only target the needs of the “median voter”, therefore exhibiting similar policy preferences as men, they might have unobserved political skills which are not exploited in case they are discriminated against (Ferreira and Gyourko, 2014). From an efficiency perspective, under-representation is problematic if it stems from a lack of opportunity to succeed in a political career, instead of an active choice of women to stay away from the political path: by considering only a limited pool of candidates, competition for political posts is hindered as all resources are not taken into account for the selection, in turn perhaps lowering the quality of candidates elected (Bagues Esteve-Volart, 2012).

Four main reasons are presented in the literature as explanations of the absence of women from the political arena: self-selection, party bias, voter bias and electoral systems. These factors and their links to double preference voting are presented in the following paragraphs.

3.1.1 Self-selection

As any other career choice, selection of candidates to a certain profession is influenced by both opportunity costs and intrinsic motives. If a candidate expects higher returns from other sectors of the labor market, then they will have a high opportunity cost for entering politics and may decide to steer away from it in favor of more profitable opportunities (Dal Bó et al., 2017). Conversely, a candidate with low expected returns from the private sector may find the public sector attractive. As the returns are dictated also by personal competence, this may lead to a negative selection of politicians (Caselli and Morelli, 2004).

Following this reasoning, women may find a political career unattractive if the opportunity costs are high compared to the expected returns from a political career. If women expect higher returns from other career choices, they might choose those career paths instead of the political career (Dal Bó et al., 2017). This type of candidate self-selection does not restrict the available pool of political talent available for public service, as the candidates would not have chosen a public career anyway. In turn, however, the payoff from a political career might be influenced by likelihood of succeeding at it: if self-selection is a result of a decreased likelihood of success, not dictated by competence, then it is unclear whether withdrawal can be viewed as

self-selection or as an efficiency issue, especially in case of risk-averse individuals.

3.1.2 Party bias

The first external reason why women might be underrepresented against their potential willingness to pursue a political career is party bias. Party bias refers to discrimination of parties towards women candidates. This discrimination can take place either through an unfavorable placement in candidate lists (Esteve-Volart and Bagues, 2012), or through a lack of support for female candidates inside the party, in a belief that female candidates are less likely to win elections (Bhavnani, 2009).

Quotas have been the primary tool for the reduction of party bias in elections, however, their effectiveness might be limited if candidates are placed unfavorably in ballots in the context of closed list systems. For example, candidates who are placed to a higher position in the party list, regardless of whether the system is open or closed, tend to perform better compared to candidates towards the list bottom. Parties may then place female candidates strategically in party ballot, reducing their chances to get elected in a closed list system (Esteve-Volart and Bagues, 2012).

In the context of an open list system, party bias can work in the same direction, if the ranking of candidates in lists still matters for the amount of votes received (Baltrunaite et al., 2017). Furthermore, parties might not overcome their bias until the woman wins competitive elections against male candidates without the use of external allocation of seats, as one of the main concern for biased parties is that women are not as effective in winning elections as men (Baskaran and Hessami, 2018). For this reason, policies giving a higher likelihood to women to win elections in the context of an open list system - such as double preference voting - may be a useful tool to reduce party bias when simple quotas do not suffice.

3.1.3 Voter bias

Negative voter bias refers to the tendency of voters to eschew female candidates. While party bias might still influence results in a proportional, open list system, a bias against women candidates on behalf of voters will have a stronger impact on their representation in this context: the open list system empowers voters to choose candidates independently from any position of the party list, giving voters more freedom to discriminate against their least preferred candidates.

Voter bias can be attributed both to gender norms (Profeta et al., 2018) or statistical bias, related to lack of exposure to female candidates (Baskaran and Hes-

sami, 2018). The voter’s problem when choosing a candidate directly from a party list is that she would like to choose the most able politician of the ones presented, with limited information at her disposal on the ability and intrinsic motivation of candidates (Dal Bó et al., 2017). While cultural bias is stickier and perhaps more difficult to tackle on its own, avoidance of female candidates may then be a result of a lack of female politicians in office: as voters do not have enough information on the competence of women as politicians and therefore discriminate against them. Exposure to female politicians should then contribute in removing this statistical bias, as voters learn about the skills of women as politicians (Baltrunaite et al., 2014).

For example, Beaman et al. (2009) study the impact of exposure to a female politician in the context of Indian villages, where female leadership of towns is allocated by randomly assigned quota. They find the causal impact of exposure to a female leader improves voters’ perception of women as politicians and these gains in perception have spillovers that extend outside of politics. Voters’ experience of a female leader can reduce negative bias related to ignorance about womens’ political skills.

In this context, and partially perhaps for the same reason, the election of women as political leaders may even create positive spillover effects for other female candidates, for example helping them get elected (Baskaran and Hessami, 2018). The impact of exposure to female candidates arising from policy choices seems also to be persistent, influencing electoral outcomes also after the specific policy channel has been removed. For instance, Bhavnani (2009) studies this long-term impact of quotas, finding that exposure to female leaders in Indian villages remains in affected areas even after the removal of the policy. Prior evidence therefore shows that a policy successfully increasing exposure to female politicians can be useful to reduce voter bias, and its effects may be prolonged, even extending to other layers of the political hierarchy in case female politicians are elected to leading positions.

3.1.4 Electoral systems

Voter and party bias have important interactions with the electoral system, as the latter sets the constraints for transmission of either bias in electoral results. First, whether a system is majoritarian or proportional affects female representation. Further, whether a proportional system is organized through open lists or closed lists influences the share of elected women. The impact of the electoral system will then depend on (i) the importance that the system places on individual candidates and (ii) which type of bias is prevalent in the electorate.

In general, it has been shown that electoral systems with a stronger focus on individual candidates are less advantageous for female candidates compared to electoral

systems where the main focus is on the party (Thames and Williams, 2010). For example, Profeta et al. (2018) show that in Italy, the shift to a proportional electoral system in national elections led to an increase in women’s representation. The proposed mechanism for this increase is the placement of candidates on behalf of parties and the risk-aversiveness of female politicians: the authors show that in proportional systems, parties are less likely to place women to highly competed positions, which in turn encourages them to run for office, if the underlying assumption is that they otherwise tend to eschew high-competition situations. In majoritarian systems, a more direct competition and the consequent placing of candidates to more competitive positions leads women to withdraw more easily, and to parties not choosing female candidates by internalizing this and voter bias. The insight from this study is similar to the one obtained from Thames and Williams (2010). In principle, therefore, a proportional system should encourage women to run for office.

Within a proportional system, open lists will amplify voter bias, whereas closed lists will strengthen party bias. Gonzalez-Eiras et al. (2018) use a regression discontinuity setting to show that in the context of Spanish elections, voter bias is prevalent: votes for women are lower (2 to 3 p.p.) in open list systems, compared to similar municipalities adopting a closed list system. In the context of Italian municipal elections, this means the open list system will penalize women candidates, if voter bias is present and is more widespread than party bias.

The decrease in women’s representation resulting from open list systems is not limited to voter behavior: it also affects the party’s incentives, which in turn contribute to the selection. In closed list systems, the party’s anticipation of voter bias will lead to a penalization of women candidates in the first spots of the list (where they expect to have elected candidates), leaving other candidates on the list irrespective of their gender, if they have high quality. On the other hand, in an open list system, the internalization of the bias is not limited to the first candidate, but extends to the whole list, as the party cannot fix the order in which voters will select the candidates, therefore, this will penalize women throughout the list (Gonzalez-Eiras et al., 2018).

The negative impact of the electoral system is further amplified in case an open list system is implemented in a country holding more traditional gender norms. In these countries, the voter’s prior is likely to be that women are comparatively inferior politicians with respect to men (Profeta et al., 2018). This happens because gender is one of the pieces of information most easily available to voters when they select a candidate from a party list: if acquiring additional information beyond these evident signals is costly compared to the benefits it promises to yield, then, voters will collect as little cues as possible. Consequently, if the gender of the candidate provides a negative cue to the voter on women’s competence as politicians, it will have an even greater impact on their electoral results, since it will represent a larger

share of the total information collected (Valdini, 2012). Moreover, in proportional systems with open lists, "social norms" concerning the candidates receiving more votes and their allocation of a place as mayor differ: normally, in Spanish municipal elections, the candidate receiving the most votes becomes mayor, but this is not always the case when the second-preferred candidate is a male. Sometimes in this case the social norm is not enforced, and the second-preferred candidate is still chosen for the position (Gonzalez-Eiras et al., 2018).

Culture will not only affect outcomes through the voter channel: it can interact with the electoral system also through the party's strategy. Profeta et al. (2018) highlight that cultural attitudes towards women affect how the electoral system reflects in the selection of politicians under different electoral rules. For instance, they show that in Italy, areas where gender roles are perceived as more traditional (Southern Italy) elect female politicians who are more skilled compared to their male counterparts. They rationalize this result by explaining parties "compensate" for the choice of gender (viewed negatively by voters) through a higher quality of the candidate in other areas, such as education.

Overall, an open electoral system will increase the chances of voter bias negatively affecting women's electoral results, and the effect will be accentuated if the country's culture does not provide a positive prior to voters on women as politicians. However, there is evidence that exposure to a previous administration by a female mayor reduces both voter and party bias against women, leveling the number of votes received by female candidates (Baskaran and Hessami, 2018; Gonzalez-Eiras et al., 2018).

3.2 Double preference voting

Double preference voting was experimented for the first time in Italy in occasion of the regional elections of Campania, in 2010. Thereafter, the new voting system was formalized and extended to the national territory through law n.215/2012.³ The objective of the new policy was promoting equal opportunities for both female and male councilor candidates, as well as increasing the share of women in representative organs.

The first elections where the double preference voting system was experimented were the municipal elections in 2013. Baltrunaite et al. (2017) study the impact of the new voting policy using municipalities voting between 2013 and 2015 through regression discontinuity, finding it has increased the share of women elected 18.3 percentage points. This increase represents a change in the composition of municipal

³Available at: <http://www.gazzettaufficiale.it/eli/id/2012/12/11/012G0237/sg>

councils from a 28% of women to more than 40%, practically, an increase of around two more female council members on average per municipal council, as council size is typically around 10-11 in municipalities at the cutoff. Additionally, the policy increased the votes received by women by 15% in the sample of municipalities considered by the authors.

While the double preference voting policy was implemented simultaneously with gender quotas, the authors find that the increase in representation and votes received by women was namely driven by the availability of a second preference vote. In fact there are no changes in the gender representation of candidates in party lists across the threshold, meaning the result is not driven by a change in the candidates available for a vote. Moreover, the gender quotas are necessary in this type of system to avoid concentration of votes to a few "minority candidates": with less than 2/3 of candidates representing one gender, all additional second votes would be directed to the few "minority candidates", whereas first votes would be dispersed across majority candidates.

As mentioned in the previous section, electoral systems and their interaction with bias by voters and parties affect female candidates' performance. The new voting system addresses primarily voter bias by giving voters an opportunity to express two votes, but restricting the use of the second vote to a candidate of a different gender than the first. While the policy targets primarily voter bias, Baltrunaite et al. (2017) also test for the presence of party bias, as it is still possible that parties manipulate the position of candidates in the party list to strategically favor male candidates. Baltrunaite et al. (2017) find no evidence of such manipulation, concluding the working of the policy primarily arises from a successful targeting of voter bias, instead of from successful addressing of party bias.

Ultimately, the hypothesis from Baltrunaite et al. (2017) is that the voting policy works by increasing opportunities of voters to choose women candidates, who would not be chosen with a single vote. Further, they maintain that the policy has worked because it has addressed voter bias in a way other types of policies, or sole gender quotas, would not have done. However, it remains unclear from the impact of the policy why the increase in representation has not been larger than 18%: if every voter used their second preference vote, the votes received by women candidates and male candidates should be equal. While the votes received might not reflect directly in the composition of the council, also the impact on votes has been small compared to results theoretically achievable through the policy: most preference votes have not been exploited in the first place. The impact that voting behavior might have had on these results is examined in the next section.

3.3 Expressive, strategic and rationally ignorant voters

The voter's decision to vote can be summarized by the voting condition $pB + d = c$, as described in Coate and Conlin (2004), Palfrey and Rosenthal (1983) and Downs (1957), where the term p represents the probability that the voter is pivotal and its vote influences the outcome of the election and B the utility from influencing the outcome of the election. The term p depends on the size of elections: it is decreasing when the number of voters increase, since the probability of a single vote being pivotal decreases with the number of voters. It will then be the case that when p tends to zero (as in very large elections, where the number of voters tends to infinity), the only term that will matter will be the "expressive one" as the small probability will remove the strategic concern of voters: if the expressive utility that the voter gets from voting is large enough compared to the cost of voting c , then the voter will use the second preference vote. It therefore ultimately depends on the perceived expressive utility of the second vote, if voters will choose to employ it or not (Coate and Conlin, 2004).

In the context of double preference voting, the theory can be applied to the decision of voters to place a second preference vote or not: voters will place a second vote if the perceived benefit d of expressing the second vote is greater than the perceived cost c . The benefit of expressing the second vote might not be only derived by expressing support for a single candidate in the double vote case: since the vote is a vote for a candidate couple, it also includes information on the preferred diversity level of the council, which might influence the level of expressive utility that the voter gets from expressing this type of vote. On the other hand, the need to pick an additional candidate increases the costs of placing the vote. In theory, this would imply that voters whose expressive utility is higher would be more likely to place a second preference vote, and conversely, if this expressive utility is influenced by the objective composition of the council, it could be that voters who are more interested in a diverse composition of the council use more preference votes.

The impact of the new system therefore depends on individuals' preferences and on the way in which these preferences translate into votes based on the three factors above: strategic concerns, expressive utility and cost of voting. I analyze each of these factors separately in this section, focusing especially on the two traditional paradigms of voting: strategic voting and expressive voting. The first paradigm considers strategic or pivotal voting: the voter's choice is directed by the probability of her vote being pivotal and influencing the result of the election (Arrow, 2012). Voters whose choice is driven by pivotality are called strategic voters.

The decision-making process of a voter with strategic concerns when selecting a candidate for election is that of pairwise comparison between candidates who are adjacent in the voter's preference ranking, this voter will make tactical decisions to

advance the chances of voters higher in her preference ranking compared to other candidates. These decisions might imply that the voter does not choose candidates in the order given by the preference ranking, or in the case of the double preference voting system, they might abstain from giving a vote altogether.

For strategic voters, therefore, there are two aspects which influence the voting decision: the expectation of the candidates who will get elected, and their individual preference ranking. Their voting decision is a function of these two components. The Gibbard-Satterthwaite theorem (Gibbard, 1973) indicates that in voting contexts with more than two candidates, there is always a situation where at least one voter benefits from voting tactically if the voting system is other than dictatorial. In this case, an example where a voter could benefit from tactical voting would be the case where a voter abstains from placing a second vote, if they expect their vote to benefit a candidate who is lower in their preference ranking.

On the other hand, some voters may only derive some degree of utility from voting for the candidate they prefer, instead of voting driven by the belief of influencing the electoral outcome. Especially in large elections, the probability for a voter of becoming pivotal might be small, arguably decreasing its likelihood to direct the voting decision. This interpretation of the voting decision is called expressive voting, as the voters derive expressive utility from the voting decision, and voters in this context are sincere, as they reveal their preferences through their vote without aiming at affecting the outcome of the election in a strategic way (Brennan and Lomasky, 1997).

In practice, voters who are expressive will vote candidates in the order implied by their preference ranking, after having taken into account the restrictions that the new voting system imposes - they are "sincere". In the context of double preference voting, if expressing an additional vote provides them additional utility and they have complete preferences for candidates, then a voter who is expressive, is aware of the possibility of placing two preference votes and has at least two candidates of a different gender in their preference ranking should always place a second preference vote. If all voters derived expressive utility from using double preference voting, conditional on (i) the voters knowing that the double preference voting rule exists; and conditional on (ii) the voters having at least two candidates of a different gender in their preference ranking, then, the double preference voting rule should achieve an equal share of votes received by men and women in party lists. ⁴

With expressive voting, the voter using the double preference vote will simply choose

⁴This would not necessarily mean equal representation in municipal councils because the seats are allocated based on party votes. Also, there would not be equal representation in the case where only one woman gets all the "female" votes: paradoxically, this can create a situation where women are less represented, since the votes accumulate only to one candidate.

her most preferred two candidates. However, in the framework of strategic voting, the voter has a preference ranking which she follows to get her candidates elected. Taking a simple example, we can assume a voter expects candidate A, candidate B and candidate C to be elected. Candidates A, B, and C are all men. The last candidate, D, is a woman. In this case, the strategic voter will only place a second vote if she prefers female candidate D to candidate C. If double preference voting leads voters to choose against their preference ranking, then double preference voting acts as a nudge: restricting the choice of candidates for the second vote, the social planner creates a system which mechanically increases the share of women in councils (Balz et al., 2014).

Finally, the new voting system increases the complexity of elections. As acquiring information on candidates is costly, voters may choose to limit the resources they use to evaluate the candidates, or vote ideologically to limit the amount of information needed: this type of voter is called rationally ignorant (Downs, 1957). In this context, the “rational ignorance” phenomenon described by Downs may induce some voters not to use the second vote. In case voters are ignorant about the characteristics of the candidates, they might prefer to leave the decision on whom to elect to better informed voters. In this case, they would either vote ideologically in the sense implied by Downs (1957), and only choose a party, or vote for only one candidate as they are not informed enough to choose a second candidate. Finally, the increased amount of choices required by the new policy can induce what Augenblick and Nicholson (2015) call *choice fatigue*: the increased amount of decisions required on behalf of voters to be able to cast a complete vote with two preferences is higher, which may lead to voters abstaining from placing a preference vote altogether when faced with the increased complexity of the decision (therefore increasing the share of “only party” votes).

4 Theoretical framework

4.1 Votes and preferences

There are two main explanations for the mechanism through which the new voting system works to increase the share of votes for women. The first explanation, supported by Baltrunaite et al. (2017) is that the new voting system, through the option to cast a second vote, allows voters to express their preference for diversity. This preference for diversity is interpreted by Baltrunaite et al. (2017) in terms of the single candidate: as voters tend to place women candidates to a lower position in their preference ranking the new voting system favors women, as it allows voters to choose candidates who are in a lower position of the voter’s cardinal preference ranking.

Besides the opportunity to express a vote for a candidate who is lower on the preference ranking of the voter, there is another aspect introduced by the double preference voting policy, which is the ability to express preference for diversity in the composition of the representative committee. In the double vote system, a voter can vote for a certain *composition of the council*, besides the single candidates. A vote promoting a diverse composition of the council differs from the case where the single candidate with lower cardinal placement is selected in that it relaxes the assumption that the female candidate should be the candidate immediately following the male candidate in the cardinal preference ranking.⁵

After preference for diversity, a second explanation of the working of the policy is that this policy can *nudge* voters to choose women. The “nudging” mechanism is best explained through an example. If a voter has a preference ranking such that two candidates of the same gender (in this case, male candidates) are on the top of the preference list, but the voting rule does not allow for voting two candidates of the same sex, then a strategic voter should place only a single vote. However, if the voter receives some degree of utility from casting a second vote (the voter is expressive to some extent) then, they should always cast the second vote if the woman candidate is better than the marginal candidate in the preference ranking. Thus, the voter would place their second preference vote through the new system by construction.

Next I examine the possible votes a voter can cast in a double preference voting system and make inferences on the preference ranking they represent through back-

⁵It might be also that voters having a preference for diversity voted for women in the previous system, and might continue doing so in the new system, instead of using two preferences. If this is the reasoning of the voter, it might be that imposing the restriction even reduces votes for women compared of what would be possible to achieve with two votes. Naturally, whether this effect would be relevant depends on the overall share of “diversity loving” voters.

wards induction. I use a simple framework with two set characteristics and their variation: an exogenous ranking of candidates, and the gender of candidates. I assume the voter is only concerned about these two dimensions: the position of the candidate in the exogenous ranking, and the gender of the candidate.

In the following examples, an exogenous ranking of candidates (which could, for instance, represent their "quality") is described in the top box, with the index standing for the gender of the candidate: m for male and f for female. The quality of the candidates determines the order through which the voter expects them to get elected. Below the box illustrating the expected order of election I illustrate all the possible votes of preference a voter can cast, given the expected order of election of these three candidates and the voting rule: the voter can vote for up to two candidates. Finally, the third-level of the diagram, below the possible votes, represents the preferences of the voter for the two candidates.

I provide two examples: the first, where the gender of the first two candidates alternates and the second where the two first candidates ranked first are of the same gender. The possible votes and implied preference ranking are useful to understand why a voter can choose to cast two votes or only one.

4.2 First and second candidates have different gender

Based on the information on the quality of candidates in this case, there are three possible votes a candidate can cast: (i) one vote for the first male candidate only, (ii) one vote for a male candidate and one vote for a female candidate – the first and second candidates; or (iii) a vote for the female candidate only. This scenario is illustrated in the figure below.

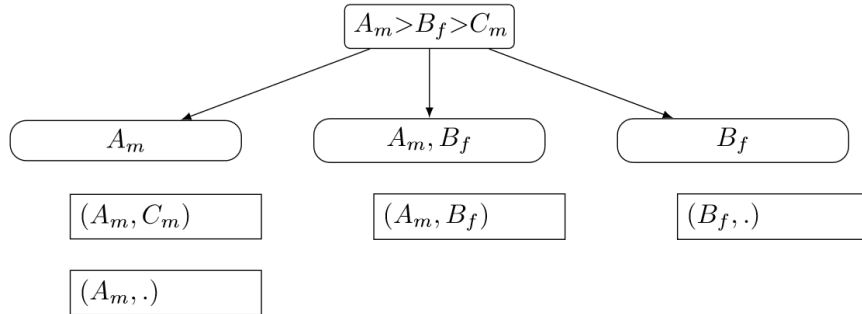


Figure 3: First and second candidates have different gender

4.2.1 One vote for the first male candidate only

In the first scenario from the left, the voter only votes for one candidate: the best candidate on the exogenous ranking, who in this example is a male candidate. Observing this type of vote can indicate one of the following options: (a) the voter has not collected information on any other candidates; or (b) he prefers any male candidate to female candidates but is not allowed by the voting rule to place a vote for two male candidates.

4.2.2 Two votes

If the voter casts two votes under these assumptions, it can be inferred the voter indeed has preferences for A and B. If this voter would have had only one vote, he would have solely voted for the first male candidate A: the policy enables this voter to cast a second vote, which he will cast for the female candidate, the "next best" candidate for this case.

4.2.3 One vote for the female candidate only

Assuming the voter knows the voting system allows two preference votes, by placing this vote he reveals he is either (a) uninformed about other candidates (b) prefers only female candidates. Given the voting rule and the candidates available, this voter will only choose the female candidate B. Unfortunately, one cannot distinguish if it gender preference or lack of information driving the result.

4.3 Two first best candidates are of the same gender

In this scenario, again we can observe three possible vote combinations. These combinations are illustrated in the tree below.

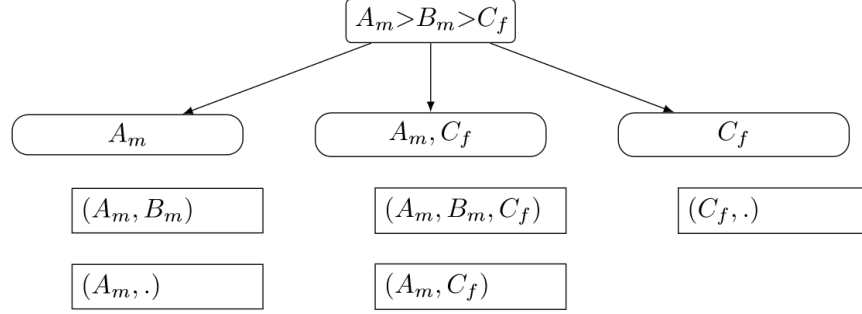


Figure 4: First and second candidates have the same gender

4.3.1 One vote for the first male candidate only (A)

In the first case we observe only a vote for the first best candidate, who in this scenario happens to be a male candidate. A voter can cast this type of vote only in two cases: (a) when she would have chosen two candidates of the same gender, but was not allowed by the policy; or (b) when she only knows the first candidate or when that is the only candidate she prefers.

4.3.2 Two votes (A and C)

Second, we can observe a vote for two candidates. This scenario is central for the understanding of the mechanism through which double preference voting works to increase the preference votes received by women. This type of vote implies that either the voter has a “preference for diversity” or that she is “nudged” by the system to cast a vote for a candidate of a different gender.

(i.) *“Preference for diversity”*

A voter can cast a vote for A and C if he has preference for diversity: his objective is that of having a different gender mix represented, which can be inferred from his preferences for candidates A and C. This type of vote means that the voter is more interested in selecting two candidates of a different gender than selecting two candidates of the same gender with more likelihood of being elected.

(ii.) “Nudge”

Another case where one would observe a vote combination A - C would be when the policy “nudges” the voter to express a second vote. In this case, the voter would have preferred the candidates in the order of “quality” or election, but instead, she is constrained by the policy. Without the constraints of the policy, to choose a second candidate, this voter would have compared candidate B and candidate C and determined that she prefers B to C, leading to a second vote for B. However, the policy imposes a constraint to her choice and changes the relevant pairwise comparison for the voter: now, she can either choose to not place a second vote at all (vote only for candidate A), or to use a second vote. In case she derives some degree of utility from expressing an additional vote, she will place this additional vote (since some degree of utility makes her better off than no utility at all).

4.3.3 One vote for the female candidate (C)

Finally, one could observe a vote for a female candidate only. The interpretation is slightly different than the first scenario because of the options available: in this case, as we cannot distinguish whether the preference is dictated by not having enough information on other candidates, or a single-minded preference for gender over the quality of candidates.

A mapping of the votes cast and the underlying preference ranking therefore is useful to understand why voters would cast a second vote or abstain from it. To summarize, voters will abstain from casting a second vote either because they strictly prefer candidates of one gender or because they are not informed about other candidates. A voter will cast a second vote in three cases: first, if the two first preferred candidates for the voter have different gender; second, if the voter strictly prefers a diverse gender mix in the committee (“preference for a diverse gender mix”); third, if the voter derives any utility from placing a second vote compared to placing no second vote at all (where the policy “nudges” voters).

4.4 Why voters do not cast a second vote?

The maps presented in the previous paragraphs provide a set of possible avenues through which the policy has increased the number of women elected, however, this increase has been moderate compared to the potential of the policy to increase votes received by women: if everyone used the second vote, then, the number of votes for men and women would be equal.

The moderate increase means not all voters used the second vote. From the maps presented above, two reasons for this behavior emerge: rational ignorance and a single-minded preference for candidates of a specific gender, which limits by design the amount of votes one can use. In the first case, the voter only uses one vote because the cost of information surpasses the expressive benefit to cast an additional vote. This effect might be especially relevant if the degree of expressive utility derived from expressing an additional vote correlates with the probability of the candidate being elected (i.e. if the candidate ranking of the expressive voter is influenced by the expected order of election of the candidates).

In the second case, the preferences of the voter are simply such that she only will vote for candidates of a given gender. As two votes for candidates of the same gender are not valid under the new system, they will be discarded and therefore only one of the votes will pass. Knowing this, the voter will probably choose to cast a single vote. This type of preferences can be driven, for instance, by heuristics dictating that a certain gender has inferior political skills compared to the other (Valdini, 2012).

4.4.1 Uninformed voters

One of the assumptions on which the interpretation of the map in the previous paragraphs relies is voters' knowledge of the voting rule. Specifically, this assumption enables interpreting single votes as either the result of lack of information on specific candidates (the "rational ignorance" case) or as the result of a preference for a candidate of one gender only.

However, if a voter does not know the functioning of the voting system (or example, he does not know that two preference votes are available instead of one), then the single votes can also be attributed to the lack of knowledge of the voting system, besides the other options delineated before.

4.5 Order of voters' preferences

In the theoretical model presented by Baltrunaite et al. (2017) the order of the preferences of the voter determines the mechanism through which the policy works. As the policy extends the choice set for voters by including an additional vote, the policy will increase the share of female candidates if the "second best candidate" is a woman. The implication is that the preferences of Italian voters are characterized by this type of preferences.

Therefore, if we should observe that voters place more second votes for women when their first preferred candidate is a male candidate, then this observation would support the argument that the second vote helps getting more women elected because they generally rank lower in the individual preference rankings of voters. It would mean the increase in share of votes from women arises from the extension of the choice set for voters.

Conversely, a reversed order could arise from several different scenarios. First, it could be that the voter’s first preference is a woman and the second preference is a male, i.e. in this case the female candidate would be the best quality candidate. Second, it could be the voter has preference for diverse representation and wants to use the second vote to advance a diverse gender mix in the municipal council. Third, it can be that the voter is “nudged” to choose the male candidate (a case of what was illustrated in example ii.b). This theoretical framework will be used to interpret the results from the electoral survey later in this paper.

5 Empirical analysis

The empirical analysis is structured in two parts. First, I study how the new policy affects the composition of municipal councils using information from all elections held between 2013 and 2018. Following Baltrunaite et al. (2017), I use a sharp regression discontinuity (RD) design exploiting the implementation of the policy at the 5,000 population cutoff. In municipalities with more than 5,000 inhabitants, candidate lists must include at least one third of male and female candidates, and there is double preference voting, whereas voters from below the cutoff are not subjected to these requirements.

This analysis extends the previous work by Baltrunaite et al. (2017). I estimate the impact of the policy on the share of women elected for all municipalities using the double preference voting policy for the first time (from 2013 to 2018). In addition, I evaluate the impact of the policy on two new outcome variables: the educational attainment of municipal council members and turnout to the elections, for both male and female voters. The availability of information on turnout by gender is unique to the Italian system, and thus this is the first study analyzing the impact of a policy on male and female voters separately.

Second, I use electoral survey information to uncover the mechanism through which the policy leads to an increase in representation of women in municipal councils. The primary outcomes of interest are the preference ranking of candidates of potential voters and the votes cast by actual voters.

5.1 Regression discontinuity

I use a sharp regression discontinuity design to estimate the causal impact of the change in voting system at the 5,000 inhabitants cutoff following and extending the study by Baltrunaite et al. (2017) for municipalities up to the size of 15,000. The running variable against which the discontinuity is estimated is municipality population, as treatment assignment to double preference voting arises from the size of the municipality in terms of population, a variable smoothly increasing at the cutoff. The outcome of interest is the coefficient of the treatment, or the coefficient of being a municipality larger than 5000 inhabitants.

Formally, the assignment of municipalities to the policy can be described as follows:

$$DPV = \begin{cases} 1 & \text{if } pop \geq 5000 \\ 0 & \text{if } pop < 5000 \end{cases}$$

Following Baltrunaite et al. (2017) and Bagues (2017), I use two tools to examine the causal impact of the new policy on the share of women elected, turnout and quality of elected candidates. First, I use plots of the binned averages with a quadratic polynomial fit around the threshold to graphically observe whether an effect is detectable. Then, I employ a local polynomial regression to estimate the magnitude of the causal impact of the policy (non-parametric approach).

The local polynomial regression can be summarized as follows:

$$Y_i = \alpha + f(x_i) + \beta Treatment + \varepsilon_i$$

Where x_i represents the size of resident population for each municipality i in the sample, β is the coefficient of interest, determining the effect of the policy on the outcome variable and $Treatment$ is a dummy variable which takes on value one when the running variable is above the cutoff point. f represents the functional form of the running variable at either side of the threshold. Finally α is a constant. The bandwidth for the regression is estimated by the optimal bandwidth established by Calonico et al. (2017) (one common MSE optimal bandwidth).

5.2 Electoral survey

I analyze preference and vote data of Italian electors to understand their voting behavior. Specifically, I focus on the following aspects, which are directly related to the theoretical framework in Section 3:

- (a) The first preferences of voters;
- (b) The voters' use of preference votes;
- (c) The voters' understanding of the double preference vote system.

The data used for the analysis of the share of preferences received by women under the existing electoral rule and under an electoral rule without gender constraints are collected through two surveys: a pre-electoral survey, administered to Italian residents of relevant municipalities four days before the first round of elections on June 10; and a post-electoral survey, administered after the first round of elections.

The information collected through the surveys helps understanding electors' preference ranking of women unconstrained by the voting procedure, and therefore is useful to gain information on voters' ranking of female candidates compared to male candidates. This survey, therefore, can be used to test the theory of Baltrunaite et al. (2017) discussed in depth in the theoretical framework, by which voters choose women with their second preference vote.

The post-electoral survey captures the actual voting decisions, including the option of voters not to express any preference votes for municipal councilor candidates. Data collected from this survey sheds light on the process through which double preference voting might have increased the share of women representatives in Italian municipal councils. Specifically, data from this survey provides information on voters' awareness of the electoral rule and their understanding of the electoral rule's implications. For this reason, it can be used to understand how well voters can anticipate how their vote will contribute to the electoral result.

6 Data

6.1 Electoral data

The Italian Ministry of Internal Affairs “Eligendo” portal provides information on electoral turnout and the number of votes obtained by each party at the municipal level. The Italian Ministry of Internal Affairs also provides information on the characteristics of elected candidates, including their party affiliation, educational level, profession, sex and age. A unique characteristic of the Italian electoral system is that it collects information on turnout by gender, which I employ in my analysis. I restrict the analysis of municipalities to those having less than 15,000 inhabitants because of the changes in the election rule for major municipalities explained in section I.

The descriptive statistics of the electoral data employed, for all years since 2010 are represented in the table below. The share of elected women councilors in the municipalities covered by the dataset is represented below. A change in the average share of female municipal councilors can be already observed from simple averages, a first indication of the potential presence of a discontinuity at the threshold due to the policy, lest there are confounding policies or manipulation.

The turnout for municipal elections seems to be relatively high, with 64% of electors participating in voting. The turnout is slightly higher, on average, for men compared to women. The availability of turnout by gender is a unique characteristic of this dataset, as other countries do not usually divide turnout by gender of voters.

Table 3 illustrates the difference between the share of elected women in municipalities with more and less than 5,000 inhabitants. The shares are averages for years 2008-2012 and years 2013-2018. Before the implementation of the policy, small municipalities had on average 18 % of female councilors in the municipal council, while after the implementation they had 38%. Large municipalities increased the share of female councilors from 22 % to 29%. Small municipalities are municipalities with less than 5,000 inhabitants, those with more are categorized as large.

Table 1: Descriptive statistics: Share of elected women

Year	Mean share (%)	N. Municipalities
2008	15.41	597
2009	22.33	4208
2010	21.71	1042
2011	20.36	1294
2012	20.18	994
2013	29.65	706
2014	32.04	4039
2015	31.27	1039
2016	31.95	1346
2017	34.08	961
2018	33.02	551

Source: Italian Ministry for Internal Affairs.

Table 2: Electoral data 2008-2018

Variable	Obs	Mean	Std. Dev.	Min	Max
Population	16,775	7392.	43578	30	2617175
Turnout	2,064	.64	.11	.19	.94
Turnout women	2,064	.64	.11	.17	.95
Turnout men	2,064	.65	.11	.20	.96
Share of women	16,777	.27	.14	0	1
Years of education	16,728	13	2	5	18

Table 3: Type of municipality

Mean share (%)	Before 2012	After 2012
Large	22	29
Small	18	38

6.2 Preferences data

The Ministry does not collect information on the number of preference votes obtained by each candidate. I construct a new dataset of preference votes received by male and female candidates using municipality websites and other internet sources. The dataset contains, for each list and candidate, the individual number of preference votes received. This information is only available for a subset of municipalities voting in 2018 (N=15). Information on preference votes received by candidates in these municipalities is collected from several internet sources; mostly from municipality websites.

Table 4: Descriptive statistics: share of votes for women

Municipality	Candidates	Share of votes for women
Acireale	144	.37
Afragola	197	.35
Bisceglie	292	.32
Brescia	230	.36
Brindisi	194	.34
Bussolengo	69	.34
Castellamare di Stabia	220	.40
Catania	258	.35
Cinisello Balsamo	117	.33
Conversano	150	.40
Fiumicino	244	.38
Formia	144	.37
Imola	123	.32
Imperia	222	.38
Ivrea	84	.41
Number of municipalities	15	

In addition to this dataset of preference votes for 15 municipalities in 2018, I also use a database of preference votes and preference indices for a set of main municipalities voting in 2018 and 2017. While the former dataset provides information on the individual votes received by women, the preference vote index database provides information on the overall use of preference votes. The dataset is obtained from Stefano Rombi (University of Catania). The dataset contains information on the total number of preference votes used, sorted by municipality and party; as well

as the total number of preference votes that voters, theoretically, would be able to express. In the case of double preference voting, each voter has 2 maximum votes, therefore, the *preference index* is calculated by scaling the recorded number of preference votes to the number of recorded voters in the municipality multiplied by two. If everyone used two votes in a certain municipality, the preference index would be 1. The average preference index for the municipalities recorded in 2018 is 0.4, suggesting that a large share of the population does not use preference votes or double preference voting. From the observation of the index only, one cannot deduct the share of the population using the double preference vote as single preference votes are also counted. This index data is therefore used complementarily with the survey data, which instead reveals whether voters use single or double preferences to cast their votes. The maximum number of preference votes is recorded in Southern Italy (Campania, Avellino), consistent with previous studies on the use of preference votes, which demonstrate that the preference index is higher in this region. (CISE, 2012).

Table 5: Use of preference votes

Region	Municipality	Inhabitants	Preference index
Sicilia	Catania	311 712	0,48
Sicilia	Messina	234 293	0,55
Lombardia	Brescia	196 745	0,24
Sicilia	Siracusa	121 605	0,55
Veneto	Vicenza	111 620	0,31
Umbria	Terni	111 189	0,29
Marche	Ancona	100 924	0,30
Puglia	Barletta	94 477	0,53
Toscana	Pisa	90 408	0,29
Puglia	Brindisi	87 141	0,54
Veneto	Treviso	84 954	0,28
Sicilia	Ragusa	74 251	0,53
Sicilia	Trapani	69 241	0,55
Lazio	Viterbo	67 804	0,47
Campania	Avellino	54 515	0,59
Abruzzo	Teramo	54 338	0,56
Toscana	Siena	53 901	0,33
Liguria	Imperia	42 328	0,47
Lombardia	Sondrio	21 558	0,47
<i>Mean</i>		104 369	0,44
<i>Std. Dev.</i>		71297	0,12
<i>Min</i>		21 558	0,24
<i>Max</i>		311 712	0,59

6.3 Candidate data

I hand-collect a dataset of 24,858 municipal councilor candidates for municipalities where elections are held on the 10th of June 2018. Councilors are collected in the dataset with names and surnames, and gender information on the candidates is associated by name to each candidate. The candidate dataset includes candidates from 17 regions and 98 municipalities where elections are held. The municipalities contained in the candidate database cover 52.96% of the total population voting in the 10th of June municipal elections.

10,599 (or 42.63%) of the councilor candidates in the candidate dataset are women. According to the electoral law, the gender ratio of candidates has to be 1 to 3 at

most. The 262 municipalities with more than 5,000 inhabitants represent 85.37% of the municipalities participating in municipal elections on the 10th of June 2018 by population.

The majority of municipalities covered by the database also have more than 5,000 inhabitants: only 11 municipalities covered in the sample have less than 5,000 inhabitants. Therefore, the candidate database collected covers mostly larger municipalities that use double preference voting.

Candidate information was collected during the three weeks previous to the first round of elections: the deadline to submit the candidate names to the municipality for registration occurs a month before the election date, and official candidate names are made available after this deadline. Candidate information was retrieved from municipality websites (dedicated elections sections and official archives), local newspapers and party or list websites.

The gender of candidates was allocated to municipal councilor candidates manually upon collection of the candidate lists. I collected a list of first names divided by males and females from internet sources, which I matched with the names of the candidate information. The first name of the candidate determined the allocation of names to one gender or the other. The remaining candidates, whose names were not present in the list were manually matched to their gender. This procedure may have produced some errors in allocation of candidates to one gender or the other, if the name of the candidate is a commonly associated to one sex but in a specific case it identifies a candidate of the opposite gender. However, names in Italy are strongly gender-specific and therefore it is unlikely for this to have happened. For instance, Esteve-Volart and Bagues (2012) and Gonzalez-Eiras et al. (2018) use the same approach.

6.3.1 Limitations of the datasets

Municipal councillor candidate information is not collected in Italy to a centralized database. Furthermore, sometimes municipalities do not publish detailed candidate information on their websites before elections, either. For this reason, some candidate information had to be collected from local newspapers in the dedicated election section. The lack of centralized information led to some heterogeneity in the data collected, which could not completely be eliminated when processing candidate information post collection. This may have led to some errors in completion of the survey on behalf of participants.

6.4 Electoral survey data

Data on voters' preferences for male and female candidates, their order, their perception of the voting system are not available from external data sources. Thus, I organized two surveys during the 10 June 2018 elections in Italy: one pre-electoral survey to assess the preferences for candidates before the vote and one post-electoral survey to assess actual use of votes, the understanding of the voting system, as well as its perception on behalf of voter. The surveys were organized through an Italian electoral survey company, Demetra s.r.l.⁶ The survey was exclusively administered to panelists who were residing in the municipalities of elections.

In total, 1,233 electors participated to the pre-electoral trial. Of these, 720 voted and were successfully contacted again to participate to the post-electoral survey. All data collected is anonymous. The profile characteristics of participants to the electoral surveys are described below and compared to the respective average values for the Italian population. There are slightly more women in the sample of participants to the survey compared to the gender ratio in Italy. The participants are also slightly younger than the general population and their self-reported income is lower than the average.

Table 6: Survey respondents and Italian averages

Characteristic	Sample	Italy
Women (%)	56.11	48.5
Average age	41.6	44.9
College education (%)	37.69	17.55
Self-employment rate (%)	7.15	23.2
Income	12,000 - 28,000	31706
Unemployment rate (%)	10.29	11.2

The survey covered the following topics:

- The ordered candidate preferences pre-vote, by candidate gender;
- The vote expressed, by gender of candidate
- The understanding of the voting system
- Perception of the voting system in the areas of equity, efficiency and "freedom of choice".

⁶The company has a panel of around 10.000 personally recruited participants, and has access to other panels' participants as well.

The detailed description of all survey questions is provided in the Appendix, at the section "Electoral Surveys". The questions relative to the preference order of candidates and personal knowledge of candidates were collected before elections. Previous to the elections, also an initial statement of the intention to vote was collected. Voters that did not end up voting were not able to participate to the post-electoral survey and were discarded through a qualifying question at its beginning.

The information collected through the electoral survey concerns survey participants residing in 98 municipalities for which candidate data was available. Most participants to the survey were residents in municipalities with 30,000 to 100,000 inhabitants (47.28%). The most represented regions were Lazio and Sicilia (48% of participants).

7 Results

7.1 Impact of the policy

7.1.1 Share of women elected

Results from estimation of the impact of the policy are presented in Table 8. The policy increases the share of elected women in municipal councils by 13.4 percentage points in municipalities adopting the policy, compared to municipalities just below the threshold not implementing double preference voting. This means on average, slightly more than one woman enters the council as a consequence of the policy at the 5000 municipality threshold, where the council size is usually of 11 members. This change represents an increase from an average of 30 % to an average of 43% for municipalities adopting the policy compared to the ones just below the 5,000 population cutoff. The RD plot for share of female councilors elected is at Figure 5, additional graphs are located in the Appendix (section: Regression Discontinuity Plots).

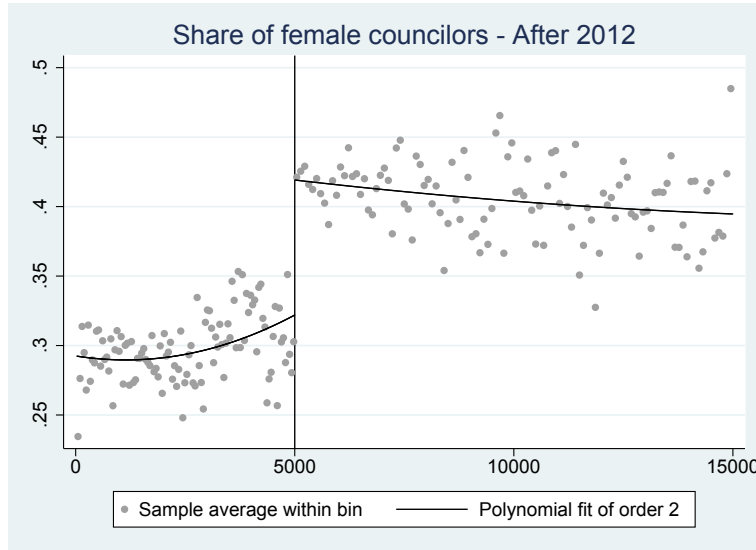


Figure 5: Share of women in councils post-reform

Notes: The graph shows the binned mean shares of women councilors plotted against the forcing variable (population size). The straight line represents the 5,000 inhabitants threshold. The fit of the polynomial is quadratic.

Table 7: Share of women in municipal councils & education

	(1) Women before	(2) Education before	(3) Women after	(4) Education After
Treatment	-0.007 (0.013)	0.121 (0.172)	0.129 (0.016)	0.260 (0.175)
Bias corrected	-0.006 (0.013)	0.15 (0.172)	0.134 (0.016)	0.260 (0.175)
Robust SE	-0.006 (0.016)	0.15 (0.20)	0.134 (0.016)	0.260 (0.21)
Bandwidth	1975	1425	1073	1623
Observations	7457	7454	7836	7794
Obs. on the right	1617	479	399	558
Obs. on the left	1168	739	561	919

Notes: The table reports results from non-parametric estimation of the treatment effect around the 5,000 population cutoff. The dependent variables in the table are the share of female councilors and the years of education completed by the council members. The results concern municipalities with less than 15,000 inhabitants. The table contains conventional RD estimates, bias corrected estimates and estimates computed with robust standard errors. The bandwidth is selected by the one common-MSE optimal bandwidth selector by Calonico et. al.2017.

7.1.2 Educational attainment of elected councilors

One of the hypotheses to be tested was whether the new voting system increases the quality of elected politicians. For instance, Bagues (2017) find that in Spain, quotas alone had no impact on the quality of candidates measured through education, using the same methodology. In this case, where quotas are combined with the double preference policy, it also appears there is no significant impact on the average educational attainment of councilors, measured in years of education completed. The point estimate of the coefficient is 0.260 and the result is not statistically significant with a standard error of 0.175 (Table 8). The effect is more likely to have been positive based on the confidence interval of the estimate, but there is no clear discontinuity at the threshold, therefore no causal inference can be drawn.

7.1.3 Turnout

The new policy could also impact citizens' willingness to vote. An increase or decrease in turnout as a result of the policy could have several interpretations: for instance, a decrease in turnout in treated municipalities could be a sign of selection. On the other hand, an increase in turnout in treated municipalities would mean the policy affects the willingness of voters to go to the polls, either because the extended opportunities of casting a vote or to protest against the new system.

The voting system does not seem to have an impact on the overall electoral turnout: there is no change in the amount of electors deciding to vote as a result of the implementation of the policy in municipalities above the 5,000 inhabitants threshold. The policy does not impact turnout for women or male voters, either (columns 2 and 3): the turnout of women or men does not increase. The gender ratio of voters does not change as a result of the policy, meaning the relative amount of men to women going to the polls does not change either, besides their absolute numbers.

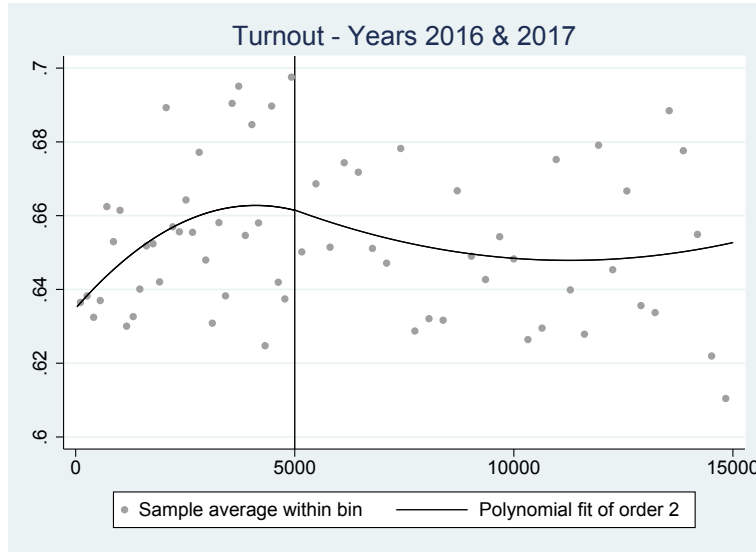


Figure 6: Impact of the policy on electoral turnout

Notes: The graphs shows the binned mean shares of women councilors plotted against the forcing variable (population size). The straight line represents the 5,000 inhabitants threshold. The fit of the polynomial is quadratic (black line).

Table 8: Turnout

	(1) Turnout	(2) Turnout women	(3) Turnout men	(4) Gender ratio
Treatment	-0.009 (0.018)	-0.006 (0.019)	-0.010 (0.019)	0.012 (0.009)
Observations	1799	1799	1799	1799

Notes: The table reports the estimated effect of the treatment on turnout in 2017 divided by gender. Turnout is estimated as the share of voters compared to the population of electors residing in a municipality. The gender ratio is the share of men to women. A higher gender ratio indicates a larger share of women voting.

7.1.4 Share of female mayors

I expand the analysis to examine whether the new voting system also affects the choice of a mayor. As mentioned in Section 1, the choice of a mayor is not subjected directly to the double preference voting system, although women could benefit from the expectation of having a larger share of women elected with them (Baskaran and Hessami, 2018).

The policy does not affect the share of female mayors in a statistically or economically significant way: the coefficients for the treatment are very small, in addition to their imprecision. This finding is similar to that of Bagues (2017), who finds no impact of quotas on the share of female mayors. Neither quotas associated to double preference voting seem to have an impact on this outcome.

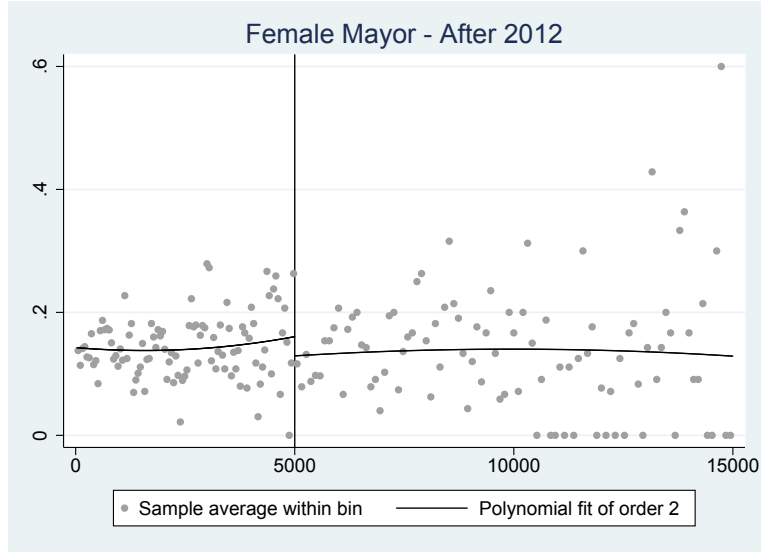


Figure 7: Female mayors

Notes: The graphs shows the binned mean shares of women mayors plotted against the forcing variable (population size). The straight line represents the 5,000 inhabitants threshold. The fit of the polynomial is quadratic.

Table 9: Female mayors

	female mayors before	female mayors after
Treatment	0.050 (0.036)	-0.075 (0.040)
Bandwidth	1654	1575
Observations	7443	7825
Obs. to the right	542	549
Obs. to the left	890	881

Notes: The table reports the estimated effect of the treatment on share of female mayors for elections between 2013 and 2018 (after) and before 2013 (before). Standard errors for the estimated coefficients in parentheses.

7.2 Validity of the empirical strategy

7.2.1 Manipulation

The identification strategy relies on the assumption that treatment assignment cannot be manipulated: assuming assignment to treatment cannot be manipulated through the forcing variable on behalf of voters or municipalities, the allocation of municipalities to treatment should be as good as random. Selection of municipalities to one side of the threshold or the other can be detected by observing the distribution of the running variable at the 5000 population cutoff. Checking for covariate balance should ensure there are no significant differences in municipalities across the cutoff.

I use a McCrary test to graphically inspect the density plot of the population variable around the threshold to test the assumption McCrary (2008) (Figure 7). The distribution of the running variable does not show signs of manipulation across the threshold: there are no peaks in the vicinity of the 5,000 population cutoff. I illustrate the density function in Figure 5. Since the population variable does not present any peaks around the cutoff, I conclude there is no indication of selection of municipalities to either side of the threshold.

7.2.2 Confounding policies

Identification of the effect of double preference voting relies on the assumption no other policies are at play at the threshold. There are no other policies implemented at the 5000 population cutoff after the implementation of double preference voting. A potential impact from the change in remuneration of mayors is inspected in Baltrunaite et al. (2017), with no finding of an effect when the remuneration policy is implemented. Furthermore, the mayor remuneration policy which takes place concurrently at the 5000 inhabitants threshold was implemented before the policy. Its effects are inspected by checking for changes in share of women politicians, quality of politicians and quantity of women mayors at the threshold.

The remuneration policy could impact the observed outcomes in several ways, all of them reliant on the assumption that mayors and/or councilors react to financial incentives. First, the remuneration policy could raise the quality of elected politicians, if it causes the competition for spots in the municipal council to increase. Second, the policy could increase the share of female mayors if some women, previously attracted by a higher retribution in the private sector or industry are now opting for a political career. The impact of the remuneration policy can be tested by performing placebo tests at the 5000 inhabitants cutoff before the actual double preference voting policy is implemented (before 2013).

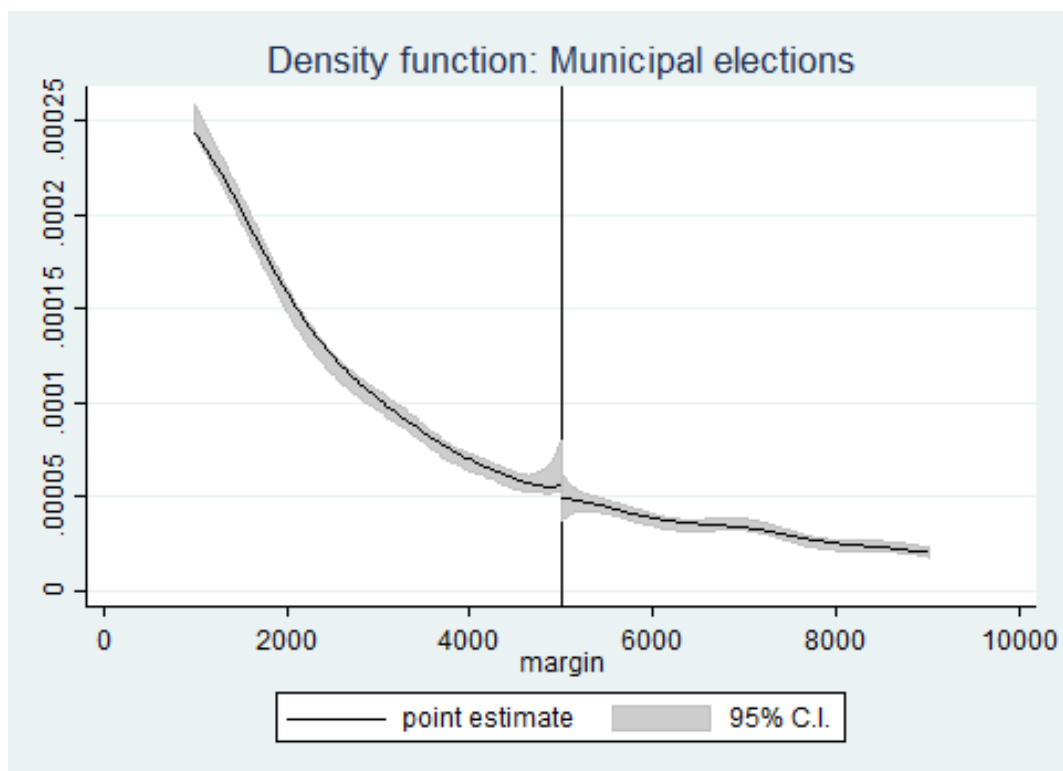


Figure 8: McCrary manipulation test

Notes: The graph plots the density of the running variable around the threshold of 5000 inhabitants. The shaded region represents the 95% confidence interval.

If there are confounding factors at play at the 5,000 population threshold other than the implementation of the new policy, then the effect captured by the regression discontinuity would be present even before the implementation of the policy. To ensure the policy does not impact the outcome variables of interest, besides examining the impact of the policy after its actual implementation, I also examine whether an impact is detectable at the threshold before the implementation of the policy during years before 2012. The results are reported in Table 2. There is no detectable impact of the policy before the policy has taken place.

7.3 Discontinuities in differences

An alternative method of estimating the impact of the policy is to estimate its effect based on changes in shares of women, education and female mayors, to see whether the policy has impacted the rates of change in these variables over time. For example, Bagues (2017) use this method to inspect the impact of quotas on party lists on similar indicators (share of women and quality of politicians). The differences approach differs from the linear one as it can capture the impact on rate of changes in these variables, therefore capturing changes in the variables observed over time which might not be noticed from the linear estimation. Results from this estimation are reported in Table 11.

The coefficient relative to changes in share of women elected is similar to the one estimated through the traditional linear method, and it would indicate a causal change in share of women elected of 13.8 %. Again, this effect is highly significant: the smallest effect caused by the policy would be 9%, while the largest 18% based on the 95% confidence interval. The effect of the policy on years of education is smaller than the one presented by traditional estimation and would indicate an effect of 9%, and still not significant. Finally, the impact on the change in share of mayors is insignificant in this case, too (coefficient: -0.03, SE: 0.04).

	Δ share of women	Δ education	Δ female mayors
RD estimate	0.139 (0.021)	0.091 (0.154)	-.039 (0.044)
N	6975	6943	6997

Table 10: Results from regression discontinuity estimation on differences

Notes: The table shows results from regression discontinuity estimation on differences between shares of women elected, elected mayors and education levels of councilors, measured in years. The change in variables is calculated for each year available for years 2013-2018 as $\Delta = share_{t2} - share_{t1}$

7.3.1 Impact after multiple elections

I compare the estimated impact of the policy on the municipalities that voted twice using the new system to understand whether voters might have started to use more second preference votes the second time they had the opportunity to use second preference votes. It appears from regression discontinuity results that the impact of the policy in the municipalities under analysis (N=591) seems to have been lower because of an increase in female councilors elected in municipalities below the 5000 population threshold. In 2013 elections, the average share of female councilors in municipalities below 5000 inhabitants was 27% , whereas in 2018 it was 30%; comparably the share for municipalities above 5000 inhabitants was on average 34% in 2013 and 39% in 2018, but there is no clear discontinuity when taking into account only municipalities from 2018. The gain in women’s representation above the population threshold seems therefore stable and even increasing (from 34% in 2013 to 39% in 2018). The estimated impact from the regression discontinuity changes mostly because women’s representation in municipalities below the 5000 population threshold has also increased and seems to be closer to the average share of women in larger municipalities than before. Potentially, this could indicate a ”spillover effect” of the policy in terms of awareness towards issues of equal representation to municipalities not affected by the policy, but close in size to the ones affected. However, the latter hypothesis is only speculative and cannot be tested in this setting as there might be other factors influencing the increase in representation below the threshold.

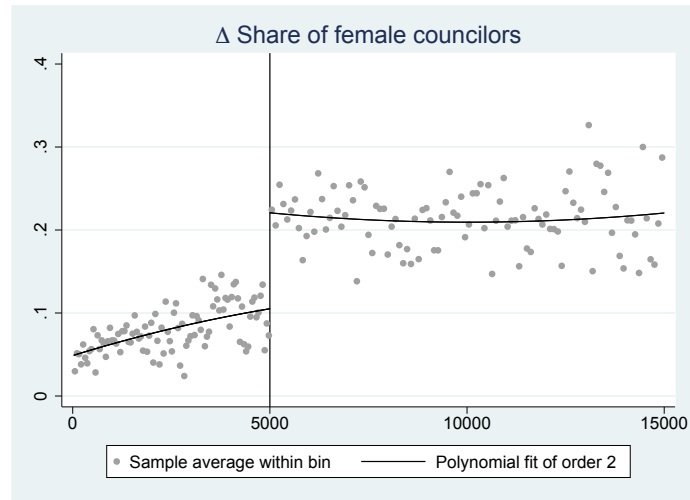


Figure 9: Impact of the policy on differences in shares of women elected

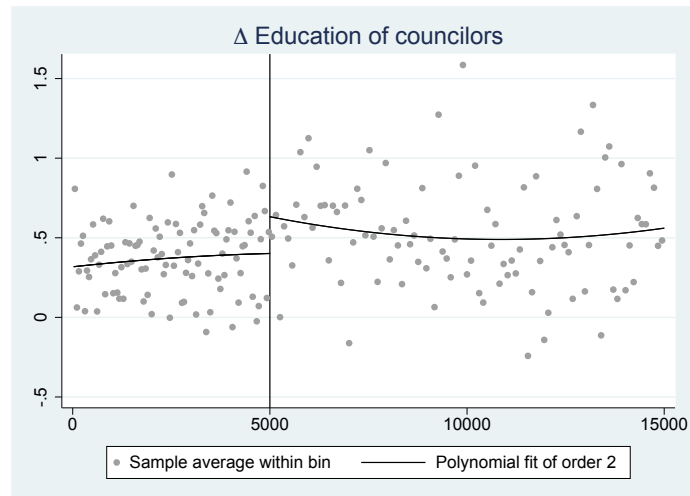


Figure 10: Impact of the policy on differences in education

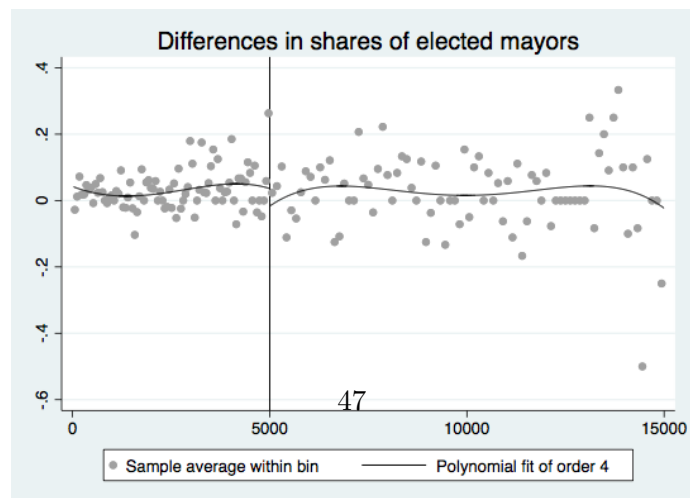


Figure 11: Impact of the policy on differences in shares of elected female mayors

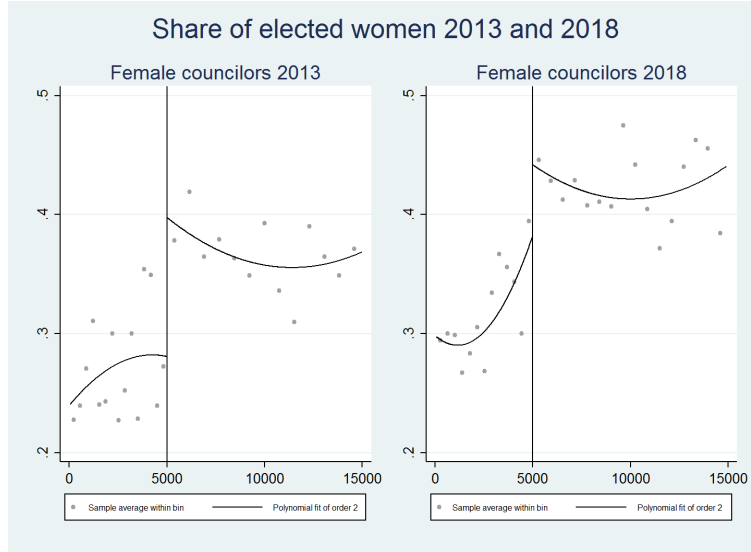


Figure 12: Impact of the policy after multiple elections

Notes: The graph shows the plot of the estimated impact of the policy in municipalities that voted twice with the policy, in 2013 and 2018 for municipalities until 15,000 inhabitants. There are 591 such municipalities.

	Share women 2013	Share women 2018
RD Estimate	0.130 (0.061)	0.087 (0.053)
Obs. to the left	403	406
Obs to the right	194	185
N	597	591

Table 11: Share of women with multiple elections

Notes: The table presents results from regression discontinuity for municipalities voting in 2013 and 2018. These are the same municipalities observed in two different elections. Standard errors are in parentheses.

7.4 Mechanism of the policy

7.4.1 Voters' information on candidates

Voters participating to both surveys were asked to anticipate whether they would (i) vote or not and (ii) how informed they were about candidates running for election in their municipality during the pre-electoral survey. Of the voters who participated in the second electoral survey (and therefore, stated they actually voted during the 10th June elections) the majority indicated they would be voting in elections (96%). 14 stated they would not vote and 14 stated they were not sure they would vote. The mean of the answers on level of information (on a scale from 1 to 5) was 3.7 with a standard deviation of 1.108. Of the voters who stated they would vote, only 12% indicated that they were informed less than a level of 3 on a scale of 5. These indicators provide an initial context for the interpretation of survey results, and are presented in Table 12.

<i>Voting intention</i>	<i>Scale</i>					Total
	1	2	3	4	5	
Yes	26	55	169	226	198	674
No	5	3	3	1	2	14
I don't know	1	4	5	2	2	14
Total	32	62	177	229	202	702

Table 12: Voting intention and information

Notes: The table presents results from the pre-electoral survey (N=1233). The "Voting intention column" represents the intention to vote, whereas the "Scale" column represents the level of information the voter perceives he has about candidates running for election.

7.4.2 Understanding and use of the system

Nearly half (47%) of all participants to the post-vote survey (N=720) were not aware of the availability of two preference votes in the 10 June 2018 elections and stated only one vote was available to them. As all participants to the survey were drafted from municipalities of at least 10,000 inhabitants where the new voting system was implemented, this result displays a significant lack of knowledge of the functioning of the voting system, which may be the reason why the increase in preference votes used has been moderate compared to its potential.

Consistently, half of the participants stated they did only place one preference vote. 28% of participants declared they placed two preference votes, and 22% voted only for a party list, thereby not placing any preference vote. There is no statistically or economically significant difference in the use of preference votes for male and female participants of the survey: regressing being female on the number of preference votes

used yields a coefficient of -0.021 with a standard error of 0.053, which is indistinguishable from zero. This means female voters did not take up the policy better than their male counterparts, suggesting the lack of knowledge was independent of the interest of any specific group.

A higher level of education of the voter did not affect the number of preference votes used, either: regressing a binary variable reflecting college attendance on the number of preference votes did not yield any economically significant difference, besides the variable being very imprecise (coefficient: 0.012, SE: 0.932). Again, this finding points towards a generalized lack of information, independent of socio-demographic characteristics.

Participants' ability to anticipate which types of votes would be deemed valid in the scrutiny was also tested through an exercise, where users were presented with three ballot pictures, each of them containing a potential vote. The exercise asked participants to determine which ballot would be interpreted as valid in the vote count, and multiple choices were available. Only a fraction of participants were able to distinguish the right answer from the questionnaire (Figure 7). The most common mistake was misinterpretation of the disjoint vote, where the voter can express votes for lists and candidates separately.

<i>Used</i>	<i>Known preferences</i>				<i>Total</i>
	0	1	2	3	
0	21	101	70	3	195
1	1	219	129	5	354
2	0	8	144	1	153
Total	22	328	343	9	702

Table 13: Understanding and use of the voting system

Notes: The table presents, on the Y-axis, the votes that the voters used, and in the X-axis the number of preferences that the voter was aware she had the opportunity to use in the election. Data is from the post-electoral survey (N=702)

7.4.3 Use of double preference voting

To understand the use of double preference voting, I examine the use of preference votes in two groups participating to the post-electoral survey: users of the single preference vote and users of the double preference vote. Under the assumption of expressive voting (voters are sincere) we can interpret information as a reflection of male and female candidates' position in voters' preference ranking. Therefore, information on first-choice candidates and their impact on the decision to cast a single vote or a double preference vote can be used to gain information on the mechanism of the policy, as described in the theoretical framework section.

Coherently with the imposition of quotas on candidate lists, the share of female and male councilor candidates was almost even in the dataset employed for the survey. Therefore, uneven candidate lists should have not impacted the results. The descriptive results concern the use of double preference voting for those respondents who cast two preference votes (28% of total respondents to the post-electoral survey) and the use of the single vote on behalf of those who did not use the second preference (50% of voters in the survey).

I find that those voters who cast only one preference vote tend to prefer male candidates over female candidates. This tendency is represented by a larger share of votes received by male candidates in this group, at 71%. For those casting two preference votes, the gender of the second candidate will depend on the gender of the first candidate and each voter will cast one vote for a male candidate and one vote for a female candidate by the construction of the policy.

When the voter has decided to place two preference votes, female candidates end up being the first-preferred candidates 45% of the time. This means the share of first-choice female candidates is higher for the survey participants who decided to cast two preference votes instead of one preference vote only.

Regressing the number of votes on the first-choice candidate being female shows voters who have a first-choice female candidate are more likely to place more preference votes. The coefficient of the first-choice female candidate term is positive and statistically significant, increasing by 0.139 the number of preferences votes cast, on average (SE=0.044). Also being a voter from Southern Italy seems to impact positively the number of preference votes given: this is in line with previous evidence on voting behavior in different geographical areas in Italy, with Southern Italian candidates receiving more preference votes.

Table 14: First-choice candidate with and without DPV

	Female	Male	Total
Single vote	29%	71%	100%
Double vote	45%	55%	100%
N	702		

Notes: The table presents the share of "first" preference votes received by male and female candidates for voters participating in the survey who used one vote or two votes.

7.4.4 Perception of the voting system

Survey participants who were successfully recontacted after the vote were asked to assess the system from both efficiency and equality perspectives. First, voters were asked whether they believed the system was efficient in empowering women in politics. Second, they were asked to evaluate how important equal representation of genders in the municipal council was for them. Third, they were asked whether they believed the system was influential despite not affecting the choice of the mayor. Finally, they had to evaluate whether, in their opinion, the new system limited their freedom of choice.⁷ The perceptions of the voters were collected through a Likert scale of 1 to 5, where the highest score 5 means they fully agreed with the statement proposed.

Results on voter perceptions are reported below. Most voters strongly agreed on the statement of gender equality and they also agreed with double preference voting being an efficient system to empower women, although to a lesser extent. They were almost indifferent on average on the influence of the policy on the choice of mayor. Finally, voters were, on average, in slight disagreement with the statement that double preference voting limits their freedom of choice.

⁷A translation of the statement used for efficiency is: "Double preference voting is an efficient tool in empowering women in politics". The respective quote for equality was: "It is important to have equal representation in municipal councils". On the allocation of benefits of the system, the statement was: "Double preference voting is not an efficient tool to empower women in politics, because it does not affect the choice of a mayor". Finally, the freedom of choice statement was: "Double preference voting limits the freedom of choice of voters".

As many voters state they perceive equality as an important issue through their answers, next I test whether the positive attitude towards equal political representation is reflected in voting behavior by regressing the equality score on the number of preferences cast. A more positive evaluation of the equality statement seemed to have a positive impact on the number of votes given: an increase in the Likert scale of 1 point yields an increase in number of preference votes given of 0.079 (SE: .022), which implies being more in agreement with the equality statement seems to be associated to an increase in preference votes given (an increase of 1 point on the Likert scale increases the preference votes given by 0.079).

Table 15: Perception of the voting system

Variable	Mean	Std. Dev.	Min	Max
Equality	4.00	1.216	1	5
Efficiency	3.38	1.333	1	5
No mayor	3.12	1.315	1	5
Freedom	2.86	1.365	1	5
N	702			

Notes: The table presents the mean and standard deviations for the indicators of perception of the voting system. "Equality" refers to the importance that survey participants placed on equal representation, "Efficiency" refers to how efficient they perceived the voting system to be, "No mayor" refers to a question where voters were asked if the policy was inefficient because it did not affect the mayor. Finally "Freedom" indicates whether voters thought the new voting system limits their freedom of choice in the selection of council participants. Data is from the post-electoral survey (N=702)

Table 16: Perception of the voting system

<i>Outcome: N. of Preference Votes</i>			
Variable	(1)	(2)	(3)
equality	0.079 (0.022)	0.087 (0.022)	0.079 (0.023)
female		-0.073 (0.054)	-0.068 (0.057)
college			0.0293 (0.52)
constant	0.623 (0.09)	0.634 (0.09)	0.648 (0.099)
N	702	702	657
R ²	0.019	0.021	0.017
Adj. R ²	0.017	0.018	0.013

Notes: the table reports results from estimation of coefficient by OLS. The outcome variable represents the number of preference votes given (up to two), *equality* is a variable which takes the value of the Likert scale score (1-5) for the question concerning equal gender representation. The variable *female* takes value 1 if the voter is female, *college* is a dummy variable for higher education of the voter. Standard errors in parentheses.

8 Uninformed voters and electoral results

The electoral survey revealed that a large number of voters are not aware of the existence of the new policy (47%). It is possible that this ignorance on behalf of voters is only temporary and, with time, voters gain access to an appropriate level of information on the electoral system. For example, if the lack of information on the working of the policy is a result of parties' strategies (and specifically, incumbent candidates reaction to increased competition) then, over time, ignorance on the policy should decrease as the voters are able to gain the needed information independently.

Understanding the increase in the use of the double preference vote between the first and second election would require data on preference indices or votes per voter from both 2013 and 2018. However, this information is available only partially. I therefore first compare the preference indices over time based on the aggregate information available for years 2012 and 2017 with the estimation provided by the survey. The assumption against which this comparison relies is that the use of single preference votes was similar before the introduction of the policy in municipalities voting in 2012 and 2017, and that furthermore the share of single votes cast in these municipalities is similar to the share of single votes cast in municipalities voting in 2018. In theory, if voters became increasingly aware of the availability of the second vote offered to them, the amount of votes received by women should increase in the municipalities that have voted twice. Increased awareness could influence the share of elected women positively, further increasing the share of female municipal councilors in municipalities adopting the policy. The condition for this outcome is that the increased amount of votes for women should not be directed at the same women candidates, or the result could even be a decrease in women's representation. At the same time, an increase in use of the double preference votes in different municipalities over time would indicate that awareness concerning the availability of the policy is increasing and previously uninformed voters are now able to employ the policy.

8.0.1 Evolution in the use of preference votes

Preference votes are not recorded separately in instances where the single elector uses both preference votes or just one preference vote. However, it is possible to estimate, approximately, the use of double preference votes in a certain municipality assuming that the rate of preference votes for single candidates is fixed over time in said municipality. Keeping the rate of single preferences fixed will imply that any additional increases in the index of preference will be attributable to the double

preference vote.⁸

Based on the information provided in Legnante et al., 63% of voters used the single preference vote on average in municipalities of the 2013 cohort, compared to 37% who did not use any preference votes. Keeping the share of single preference votes constant, one can calculate the rate of second preference votes. Having the second preference vote means that any vote index calculated with one maximum vote should be multiplied by two to obtain the real number of votes per person. In turn, to obtain the share of voters who have started taking up the double preference I subtract the number of votes per voter in the latter period from the number of votes per voter in the previous one.

Detailed information on the pre-reform preference index is available for municipalities voting in 2012 and 2017. Therefore, I can compare the use of preference votes in these municipalities with the assumption that the rate of single preference votes has remained relatively stable in these municipalities. The preference index results concern main municipalities, as opposed to results from the regression discontinuity which concern small municipalities. In these municipalities, the increase in the preference index supposedly caused by the double preference voting policy was 0.13 (0.08 is the median of the increment in preference votes per voter), which is 0.26 votes per voter. This would in turn mean that 26% of voters used two preferences. Comparing this result with the estimation from the electoral survey (28% of voters using the second preference vote) indicates that the share of voters using the second preference vote might not have changed greatly from one election to the other. The comparison is valid only if the set of municipalities are comparable in their use of votes before the policy and after it. Table 18 displays the preference indices for municipalities in 2017 and 2012.

⁸This method was created by the Istituto Cattaneo CISE and has been used in several practical studies of the use of the double preference vote, among others "Legnante, Pulvirenti, Ruffino, 4/12/2013, Doppia preferenza".

Municipality	2017	2012 (no DPV)	Double Preference Rate
Alessandria	0,64	0,61	0,02
Asti	0,7	0,64	0,06
Belluno	0,74	0,66	0,07
Catanzaro	1,28	0,941	0,34
Como	0,66	0,596	0,06
Cuneo	0,82	0,736	0,08
Frosinone	1,26	0,902	0,36
Genova	0,32	0,298	0,02
Gorizia	1,14	0,641	0,49
La Spezia	0,68	0,596	0,08
L'Aquila	1,2	0,906	0,29
Lecce	1,2	0,909	0,29
Lucca	0,72	0,662	0,058
Monza	0,5	0,471	0,029
Palermo	0,96	0,823	0,13
Parma	0,4	0,447	-0,047
Piacenza	0,54	0,578	-0,038
Pistoia	0,6	0,52	0,08
Rieti	1,2	0,883	0,317
Taranto	0,92	0,824	0,096
Verona	0,52	0,499	0,021
<i>Average</i>			0,13
<i>Median</i>			0,08
<i>Std. Dev.</i>			0,15
<i>Min</i>			-0,047
<i>Max</i>			0,49

Table 17: Double preference vote rate

Notes: The table presents the preference indices for 2012 and 2017. The preference index is calculated as the votes given by voters compared to the maximum available number of votes. The double preference vote index is achieved by subtraction, and has to be multiplied by two to arrive at the share of voters who used the second preference vote.

8.1 How would uninformed voters vote, when given information?

Results from the electoral survey indicate that a large share of voters appear to be not to be using the second preference vote: according to the electoral survey, only around one third of voters use the second preference. Of voters who were unaware of the opportunity to cast two preference votes in their municipality, 47.9% perceived equal gender representation in their municipality council as very important (5 on a scale of 5). Voters might then not use the second vote not because of strategic concerns or an "expressive" opposition to the policy, but simply because they are not aware of its existence.

The voters who would be likely to use the second preference vote if informed are the ones who, in the pre-electoral survey, indicated two candidates of different gender as their first and second preferred candidates. In addition, the region of the voter influences propensity to place preference votes, with Southern Italian voters placing placing on average more preference votes. Finally, the gender of the voter could influence the propensity to vote for a candidate of the same gender or to place a second preference vote. Voter behavior with information can be simulated by regressing the number of overall votes, the number of votes for female candidates and the number of votes for male candidates on these characteristics for the group of informed voters, and then extending the results to the overall pool of voters participating in the survey through a linear prediction.

The electoral survey data indicates that 38% of the votes placed by participants are directed at female candidates, although there are differences between informed and uninformed voters. Of the overall votes placed by informed voters ($N=343$), around 41% are directed to female candidates. This figure includes both first preference votes and second preference votes. Of these informed voters, 38% use the second preference vote. The figure for uninformed voters is lower: 33.5% vote for female candidates.

Predicting the voter behavior of voters who are uninformed based on behavior of informed voters (with a similar approach to Kendall et al. (2015)) would indicate that, if the uninformed voters would be given information, the share of votes received by female candidates would increase from the current 38% to 43%. Also the number of votes per voter would increase to 1.02 votes per voter on average compared to the 0.83 votes per voter estimated from answers collected in the survey. This increase in votes per voter would mean additional 2 out of 10 voters would start using the second preference vote, when informed about the policy.

9 Discussion

9.1 The policy’s impact on the share of women elected, turnout, and quality of politicians

The policy has increased the number of female politicians in municipal council by 13.4 p.p., meaning it has added one to two additional female politicians for the average size of the council at the 5000 municipality threshold (11 councilors). The result is consistent with Baltrunaite et al. (2017), although the effect is smaller when extending the sample to include all municipalities (18.3 percentage points vs. 13.4 percentage points). The smaller impact of the policy estimated from the full set of municipalities can be attributed to the smaller effect the policy has had in municipalities using it for the second time, where the effect has been very small due to an increase in women elected in municipalities below the threshold. The regression plots for each year between 2013 and 2018 support this insight, and are available in the appendix, Figure 15.

Equal representation of women in political organs is especially relevant because it might impact policymaking at the municipal level, especially in the areas that are more likely to provide advantages to women (Chattopadhyay and Duflo, 2004). (Baltrunaite et al., 2017). The new voting system might then contribute to creating local policies favoring women living in these municipalities. Increased representation is reflected in policymaking effectively if the newly elected politicians are able to fully participate in the decision making process. While municipal councilors receive permits enabling them to attend council meetings during office hours, competing childcare duties, in case they are allocated to women, might create an obstacle to participation in evening sessions, where often the most important topics are discussed.⁹ Inability to fully participate in these political activities might prevent elected women from influencing policy outcomes through participation and from advancing in the political career. It could also deter qualified candidates from running for office. At the same time, increased exposure to female politicians may create positive spillovers for future candidates (Baskaran and Hessami, 2018): for example, observing municipalities that have voted twice through the policy, one could hypothesise that the policy has created spillovers below the 5000 municipality threshold, where female councillors have increased since the previous elections in 2013, when the policy was first adopted. While the impact on councilors has been overall significant (around one and up to two more female councillors per council at the threshold, for councils of 11 members approximately), this increased representation has not affected the presence of women in leadership positions: the policy did not have a significant causal effect on the increase in the share of female mayors in municipalities affected.

⁹This insight on the timing of municipal council meetings was provided in an interview to Pietro Petruzzelli, a council member in Bari, Italy.

Double preference voting associated with gender quotas in party lists did not have a significant impact on the quality of politicians measured as years of education in municipalities where the policy was introduced, although the effect is more likely to have been positive based on its confidence interval. The estimated coefficient would indicate an increase in around 3 months of education, although graphical inspection reveals that education levels seem to be increasing with population size, with no clear cutoff at the 5000 inhabitants threshold. A previous study from Baltrunaite et al. (2014) showed that gender quotas raised the quality of politicians increasing the average level of education of councillors by 0.12 to 0.24 years - corresponding to around one to two months of additional education on average. The effect was related to an increase in the quality of elected male politicians, who were not subjected to the policy. In terms of selection of politicians to the municipal council, the result suggests that the increased competition within parties did not lead higher quality candidates to be elected. Since quality is measured through years of education, it is still possible that the policy has increased the quality of candidates based on some other unobserved dimension.

A prominent new characteristic of the voting system is the opportunity of voters to vote for a certain composition of the municipal council, instead of single candidates. While increasing the complexity of the voting decision, this opportunity also might increase the expressive utility voters derive from voting as they can vote for their preferred level of diversity in addition to the single candidates' characteristics. The potential of the policy to increase diversity in the composition of municipal councils could have elicited more voters to go to the polls in municipalities where it was adopted, increasing turnout. On the other hand, it might also have decreased turnout, if voters disagree with the mechanism of the policy or perceive it as coercive. Regression estimates are imprecise: at most, the policy might have had a positive impact of 2.5% or it could have decreased turnout by 4%. In addition to overall turnout, the turnout for male and female voters is also available from the Ministry of Foreign Affairs website. The intervals for male and female voters are similar to the ones estimated for the overall electorate, and significant effects on male or female turnout can thus not be detected, either.

9.2 Uninformed voters and the design of the ballot

One of the main results from the electoral survey concerns the unawareness of voters concerning the new voting system (47% of participants). Second, even when the availability of two votes is clear, voters participating in the electoral survey were not able to identify the ballots in which votes would be deemed valid in the vote count: voters seem to only be poorly able to anticipate the effect of their vote on the final

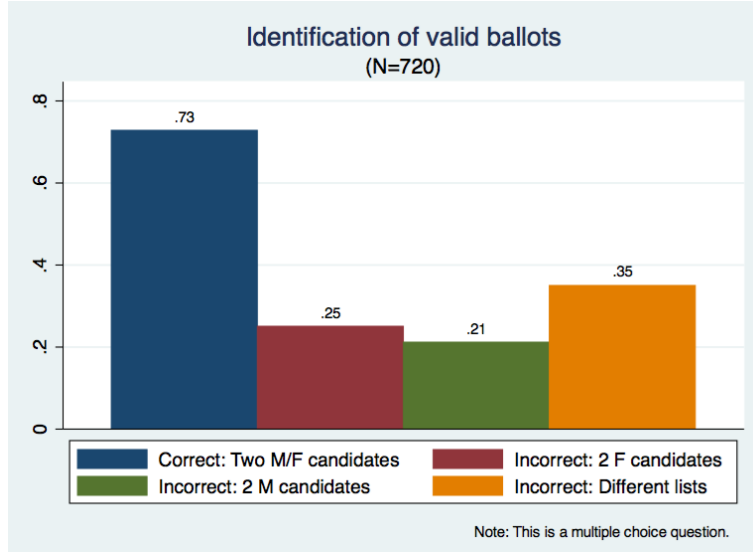


Figure 13: Identification of valid ballots

Notes: The figure shows the share of participants in the survey who selected different ballots as valid: each column represents one type of ballot selected. The only correct ballot was the first, but many voters selected both the first and other ballots as valid, making the response incorrect even if they had selected the correct ballot besides other ballots.

result of the election, even when they use two preferences. For example, the use of the disjoint vote is unclear to many voters: whereas the electoral rule establishes that the two preference votes shall be given *within* the same party list, 35% of participants selected a ballot with two candidates in different lists as "Valid". Interviews with local politicians participating in the elections in 2017 confirmed this finding¹⁰. Results are shown in Figure 11. The ability to indicate the correct number of votes was not correlated with gender or education for participants of the survey.

Lack of understanding on behalf of voters might be partly related to the misleading design of the ballot associated with a lack of prompting at the electoral site on the correct voting rule. In the current electoral ballot, there is no indication of the availability of the second preference vote. An example of an alternative configuration of the ballot is presented in Figure 13. As voters in Italy can place their vote by writing the name and surname of the candidate, the second line might be mistaken as a space to write the surname of the candidate. There might be reluctance to add additional indication of the order of candidates if policymakers suspect the vote can be better "controlled" in this way. The better opportunity to control the

¹⁰Leonora Rossi, a local politician in Pisa who participated in the 2018 elections, mentioned the use of the disjoint vote as one of the most common problems encountered by the vote counting committee

use of votes through the order or couples was one of the common critiques to the adoption of the policy in the first hand.¹¹

The concerns for vote control can be however alleviated if the ballot does not have numbers for candidates but instead "boxes" where the names can be inserted, or again if two ballots for candidates of each gender are made available to the voter. The latter method would also limit the opportunity to associated the voted pair to a single voter; however, it could increase problems relative to the use of the disjoint vote. For example Esteve-Volart and Bagues (2012), although in a different context, propose that the design of the ballot in Spanish Senate elections might have contributed to the inefficiency of quotas on party lists, as parties exploited positioning of candidates to put female candidates at disadvantage.

Figure 14: Alternative configuration of the ballot

9.3 Limitations

While the study presents many interesting insights concerning the working of this policy, certain aspects have to be generalized with caution. First, results from the impact evaluation of the policy (regression discontinuity) are complementary to the results of the electoral survey; they do not concern the same municipalities and therefore they should not be compared. While the impact evaluation municipalities are municipalities below the 15,000 inhabitant threshold, the majority of participants to the survey are from a set of large municipalities (more than 15,000 inhabitants). The impact estimated through the regression discontinuity design is local, at the 5000 inhabitants threshold, whereas data on the use of double preference votes, knowledge of voters of the voting system and ordering of preference votes for male and female candidates are estimated from larger municipalities that are thus further away from this threshold.

¹¹For example, the following popular writing articles raise concerns on double preference voting as an instrument potentially used by organized crime to manipulate voting behavior: La Voce, InGenere.

The survey methodology used also might limit the external validity of results. Although on certain basic characteristics the survey participants did not seem to greatly differ from the population of the municipalities voting on average, they might differ on other unobserved characteristics or they might have misreported their characteristics during the panel registration. The survey was distributed first four days before the elections and a week after the elections had taken place. Because of the lack of direct monetary incentives in the survey, it might be that participants have at time randomized their responses or that some different type of selection has occurred when participants had to decide whether to participate in the survey. The presence of individuals randomizing their answers should affect the precision through which the real effects can be detected, although it should not change the consistency of the answers with respect to the population covered by the survey. The total panel of participants recruited by the company has around 10,000 participants, which indicated that the response rate for the survey was among 10% of these potential panelists.

10 Conclusion

This work investigates the mechanism and impact of a new policy, implemented in Italy in 2013: double preference voting conditioned on gender. The new policy introduced a second vote available to voters to choose a candidate of a gender different from their first preferred candidate. The availability of a second vote conditioned on gender, if fully exploited by voters without errors, should lead to an equal distribution of votes to female and male candidates. The impact of this new policy was first investigated by Baltrunaite et al. (2017), who found that it increased votes received by women by 18 p.p. from around 18% to 36%. Using results from new elections covering also years 2016-2018 and thus, all voting municipalities including some municipalities that voted twice. Using a regression discontinuity design evaluating the impact of the policy at the 5000 population cutoff, I find that the new policy has increased votes for women slightly less than previously expected, 13 percentage points instead of 18 when accounting for all municipalities available.

The increase in votes received by women achieved by the policy is, however, still modest compared to its potential. Why has the increase in votes for women has then been so moderate? A rational ignorance viewpoint applied to candidate choice would lead us to believe that voters do not see the benefit of acquiring additional information to choose a second candidate, as the political relevance of a single municipal councilor is, in any case, limited. Results from the survey indicate that only around 28% of voters exploit the second preference vote available to them and that, of the overall survey population 47% are not aware that the second preference vote

exists in their municipality. The results from the survey are also supported by the estimated "double preference vote index" which shows that only around one third of voters started using the second preference vote when it was made available to them. It is probable that ignorance of the voting policy contributes to the low share of voters using the second preference vote: women participating in the survey or more educated participants did not use more second preference votes than other survey participants.

Why are voters, then, unaware of the new policy? There are three concomitant factors that can contribute to explain the phenomenon. First, the rational ignorance perspective can also be applied to the understanding of the attitude towards the overall vote: the limited importance of municipal councilors compared to the mayor might lead voters to neglect acquiring additional information on the electoral system for municipal councilors. Second, the widespread ignorance suggests also that parties might have not actively promoted the existence of the policy. In fact, the new system increases competition within parties for a limited amount of seats. This type of obfuscation might be convenient for party members, if candidates presently getting elected at the margin are subject to a higher amount of competition as a result of the policy and thus risk not getting a place in the municipal council as a consequence.

Third, on a more practical level, the lack of prompting at the electoral stage, joint with the misleading design of the electoral ballot can contribute to the persistence of this ignorance. In this regard, the electoral ballot's design does not clearly indicate that two candidates can be chosen - the elector can mistake the two lines to indicate the space for name and surname of the candidate, instead of indicating two candidates.

If all voters were aware of the existence of the two votes, then votes received by women candidates would increase from 38% to 43% overall. Among unaware voters, votes received by women would rise from 33.5% to 44%. Even if certain voters might still decide not to use the second vote, more of the potential of the policy would be exploited if voters were aware of the availability of two votes. On a practical level, the use of the two votes can perhaps be increased by indicating on the electoral ballot that two votes are available, for candidates of different gender. If the ordering of preference votes or additional information raises concerns of "vote control" in locations where this has historically been problematic, the use of separate ballots for male and female candidates could also be an option.

The less than optimal use of the policy offers opportunities for future research. The increase in use of preference votes from one election to the other does not suggest radical increases in awareness concerning the policy on behalf of voters in affected municipalities. While voters might acquire information on the existence of

the policy over time and therefore the policy can, in some years, achieve its potential in terms of votes received by women, the current setting offers opportunities to study the reasons why female candidates do not attract votes: is the lack of votes related to simple lack of information on the existence of the policy, and what would be the effect of informing them? A potential avenue for future research would be the observation of the impact of an informational intervention with different treatments: one where the information concerns only the existence of the policy, others advertising the lack of women in certain municipal councils. Voters participating in the survey deemed equal representation important, therefore, linking information on the availability of the policy with its expected impact could have a greater effect on the use of second votes.

There exist a few examples of informational interventions through randomized controlled trials in the literature. The closest study to the proposed intervention is Kendall et al. (2015). In this paper, authors use a large-scale randomized field experiment to evaluate the impact of different types of information on mayoral elections in Italy. They operate within an electorate, randomizing their treatments at the electoral precinct level, with the objective to observe the impact of two types of promotional campaigns on both survey results and vote shares. They employ two treatments. The first is based on the "valence" of the mayor (the mayor's competence, efficiency) and the other based on the mayor's ideology (keywords used refer to the mayor's values, such as "solidarity"). Their results show that the valence message was more effective in eliciting votes for the candidate. In the context of double preference voting, the two treatments would imply a similar setting: the first one would only refer to the availability of the policy, prompting voters to use the second vote as it is available to them; whereas the second would have an ideological connotation, appealing to voters concerned with equality. Based on the results from Kendall et al. (2015), the expectation of the effect on shares of votes of these two treatments would be that the more neutral provision of information would elicit a larger increase in the use of double preference votes. However, since the treatment including the information and ideology would be incremental compared to pure information, it would depend on the placed importance on equality on behalf of voters whether the impact would be larger or smaller.

Many of the informational field experiments performed are aimed at increasing turnout in elections, especially in the United States ("Get out the vote" studies). Aiming at increasing the number of preference votes by promoting the use of double preference voting can be compared to aiming at an increase in turnout, even if it concerns only the use of additional preference votes. In both cases, an increase in turnout and an increase in double preference votes enlarge the pool of votes from which a decision is taken. Use of a larger share of preference votes might also create a more representative council in a diversity dimension: by using double preference

votes, informed voters can decide the level of diversity they want to achieve in their municipality by "voting for" a certain share of female and male candidates in the council. The studies belonging to this stream of the literature mostly aim at evaluating the impact of different channels of communication on turnout of voters. For example, some of these studies observe the different impact of telephone calls or canvassing on electoral outcomes (Gerber and Green, 2000). Besides techniques for information distribution, the impact of different types of ideological information has been also studied in the United States. Gerber et al. (2009) looks at the influence of different types of media on votes received by parties. The researchers conduct a randomized controlled experiment where they distribute newspapers with a left- or right-wing ideology to different electoral districts and observe their impact on votes. Similarly to Kendall et al. (2015), they find that "pure information" (receiving any of the two newspapers) is more effective than ideology: the share of votes for the democratic party increased in the treated electoral districts independent of them receiving the democratic newspaper or not - information was more effective in impacting political outcomes compared to ideology. While most informational interventions have focused on the effect of information on turnout, some recent experiments shifted their attention on the effect of information shares of votes and their persistence, as Pons (2018): in field experiment conducted during political elections in France in 2012, door-to-door campaigning increased the share of votes of the presidential candidate Hollande, with persistent effects on the electorate also after the election in 2012. This persistence suggests that at best, the informational intervention could have a lasting impact on women's representation in municipal councils in Italy. Acquisition of information on behalf of the electorate alone seems to have been slow based on an estimation performed by comparing votes per voter in 2013 and 2018.

Within the literature evaluating the impact of informational interventions, special attention has been placed to the impact of social pressure on electoral outcomes: Gerber et al. (2008) uses a large scale field experiment to show that promising to advertise the turnout in certain electoral districts publicly increases turnout for the districts whose results will be advertised. A similar positive impact on turnout is observed in DellaVigna et al. (2016), who finds that voters are motivated to go to the polls if they have to report it to others afterwards. This "social pressure" aspect studied in the literature could also be included in the intervention by comparing the share of votes received by women in certain electoral districts compared to others, based on the use of double preference votes and share of votes received by women in these sections in previous elections.

Finally, laboratory experiments have also been used to determine the impact of the information level of voters on electoral and policy outcomes, with attention placed on the extent to which voters can anticipate the effect of their vote. For

example Lupia (1994) uses a series of laboratory experiments in a setting of simulated direct democracy to evaluate the impact of the level of information on policy outcomes chosen by voters. In these experiments, the probability of voters casting a correct vote based on their interests depends on the level of information they have. The study also shows that in cases where most voters are uninformed the electoral outcome is determined by the informed voters who can strategically anticipate how other voters will behave. In the context of double preference voting, the current share of votes received by women also reflects the preferences of the informed part of the electorate, even though many of the uninformed voters may have deemed equal representation as important in the electoral survey. Increasing information on the availability of the policy might then also impact the representativeness of the elected administration, especially for what concerns the electorate's diversity preferences.

References

- B. L. F. M. Andreuccioli, S. Paritá vó cercando. le donne italiane in settanta anni di elezioni., 2018.
- K. J. Arrow. *Social choice and individual values*, volume 12. Yale university press, 2012.
- N. Augenblick and S. Nicholson. Ballot position, choice fatigue, and voter behaviour. *The Review of Economic Studies*, 83(2):460–480, 2015.
- M. Bagues. Can gender quotas in candidate lists empower women? evidence from a regression discontinuity design. 2017.
- A. Baltrunaite, P. Bello, A. Casarico, and P. Profeta. Gender quotas and the quality of politicians. *Journal of Public Economics*, 118:62–74, 2014.
- A. Baltrunaite, A. Casarico, P. Profeta, and G. Savio. Let the voters choose women. 2017.
- J. Balz, C. Sunstein, and R. Thaler. Choice architecture. *E. Shafir, The behavioral foundations of public policy*, pages 428–439, 2014.
- T. Baskaran and Z. Hessami. Does the election of a female leader clear the way for more women in politics? *American Economic Journal: Economic Policy*, 10(3): 95–121, 2018.
- L. Beaman, R. Chattopadhyay, E. Duflo, R. Pande, and P. Topalova. Powerful women: does exposure reduce bias? *The Quarterly journal of economics*, 124(4): 1497–1540, 2009.
- T. Besley, O. Folke, T. Persson, and J. Rickne. Gender quotas and the crisis of the mediocre man: Theory and evidence from sweden. *American economic review*, 107(8):2204–42, 2017.
- R. R. Bhavnani. Do electoral quotas work after they are withdrawn? evidence from a natural experiment in india. *American Political Science Review*, 103(1):23–35, 2009.
- G. Brennan and L. Lomasky. *Democracy and decision: The pure theory of electoral preference*. Cambridge University Press, 1997.
- S. Calonico, M. D. Cattaneo, M. H. Farrell, and R. Titiunik. rdrobust: Software for regression discontinuity designs. *Stata Journal*, 17(2):372–404, 2017.

- F. Caselli and M. Morelli. Bad politicians. *Journal of Public Economics*, 88(3-4): 759–782, 2004.
- R. Chattopadhyay and E. Duflo. Women as policy makers: Evidence from a randomized policy experiment in india. *Econometrica*, 72(5):1409–1443, 2004.
- CISE. Il voto di preferenza nei comuni capoluogo, 2012.
- S. Coate and M. Conlin. A group rule-utilitarian approach to voter turnout: Theory and evidence. *American Economic Review*, 94(5):1476–1504, 2004.
- E. Dal Bó, F. Finan, O. Folke, T. Persson, and J. Rickne. Who becomes a politician? *The Quarterly Journal of Economics*, 132(4):1877–1914, 2017.
- S. DellaVigna, J. A. List, U. Malmendier, and G. Rao. Voting to tell others. *The Review of Economic Studies*, 84(1):143–181, 2016.
- A. Downs. An economic theory of political action in a democracy. *Journal of political economy*, 65(2):135–150, 1957.
- B. Esteve-Volart and M. Bagues. Are women pawns in the political game? evidence from elections to the spanish senate. *Journal of Public Economics*, 96(3-4):387–399, 2012.
- F. Ferreira and J. Gyourko. Does gender matter for political leadership? the case of us mayors. *Journal of Public Economics*, 112:24–39, 2014.
- A. S. Gerber and D. P. Green. The effects of canvassing, telephone calls, and direct mail on voter turnout: A field experiment. *American political science review*, 94(3):653–663, 2000.
- A. S. Gerber, D. P. Green, and C. W. Larimer. Social pressure and voter turnout: Evidence from a large-scale field experiment. *American political Science review*, 102(1):33–48, 2008.
- A. S. Gerber, D. Karlan, and D. Bergan. Does the media matter? a field experiment measuring the effect of newspapers on voting behavior and political opinions. *American Economic Journal: Applied Economics*, 1(2):35–52, 2009.
- A. Gibbard. Manipulation of voting schemes: a general result. *Econometrica: journal of the Econometric Society*, pages 587–601, 1973.
- M. Gonzalez-Eiras et al. Women’s representation in politics: voter bias, party bias, and electoral systems. 2018.
- M. A. Górecki and P. Kukołowicz. Gender quotas, candidate background and the election of women: A paradox of gender quotas in open-list proportional representation systems. *Electoral Studies*, 36:65–80, 2014.

- I. f. D. International IDEA and E. assistance. Gender quota database, 2018.
- P. Júlio and J. Tavares. The good, the bad and the different: Can gender quotas raise the quality of politicians? *Economica*, 84(335):454–479, 2017.
- C. Kendall, T. Nannicini, and F. Trebbi. How do voters respond to information? evidence from a randomized campaign. *American Economic Review*, 105(1):322–53, 2015.
- G. Legnante, A. Pulvirenti, and L. Ruffino. Doppia preferenza di genere alla prova dei fatti 2013.
- A. Lupia. The effect of information on voting behavior and electoral outcomes: An experimental study of direct legislation. *Public Choice*, 78(1):65–86, 1994.
- J. McCrary. Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of econometrics*, 142(2):698–714, 2008.
- T. R. Palfrey and H. Rosenthal. A strategic calculus of voting. *Public choice*, 41(1):7–53, 1983.
- V. Pons. Will a five-minute discussion change your mind? a countrywide experiment on voter choice in france. *American Economic Review*, 108(6):1322–63, 2018.
- P. Profeta, E. Woodhouse, et al. Do electoral rules matter for female representation? 2018.
- S. Rombi. Tra fattori territoriali e strategia politica: il voto di preferenza alle comunali 2016, 2016.
- F. C. Thames and M. S. Williams. Incentives for personal votes and women’s representation in legislatures. *Comparative Political Studies*, 43(12):1575–1600, 2010.
- M. E. Valdini. A deterrent to diversity: The conditional effect of electoral rules on the nomination of women candidates. *Electoral Studies*, 31(4):740–749, 2012.

Appendix

Electoral surveys

Pre-electoral survey

The pre-electoral survey was conducted during the four days leading up to the election (from Thursday to Saturday, when the elections were held on the 10th of June, 2018). Information was collected anonymously. The link was available only once for each participants and thus it was not possible to reselect options following a strategy to participate in the survey. There was no indication on the content of the survey before answering the question concerning the municipality of residence. Participants to the survey were invited to participate through an online link provided by the company. Participants were selected from a pool of candidates, of around 10.000, collected in person by the company.

The survey consisted of six questions, for an estimated time of answering of 3-4 minutes per participant.

Qualifying questions

- In which municipality do you reside?

Available answers: all municipalities and provinces. The respondent was redirected to the actual survey only in case he selected one of the municipalities voting in the June 2018 elections.

Intention to vote and information

The original language of the questionnaire is Italian. The questions in the survey are translated as follows:

- Do you plan on voting in the next administrative elections on June 10, 2018?

Available answers: "Yes", "No", "I am not sure" with the possibility to mark only one option.

- How informed do you feel concerning the candidates running for the municipal council in your municipality?

Available answers: 1-5 Likert scale, with option 1 representing "Not informed at all" and option 5 of the scale representing option "Very informed".

Preferred list and candidates

- Which list do you prefer, of the ones presented in your municipality?

Available answers: list of the party lists presented in the municipality of choice. Respondent can select one option among these.

- Who is your preferred candidate among those presented by your preferred list?

Available answers: A list of candidates presented in the list. Only one option can be selected.

- If you had a chance to choose also a second candidate from your list, which candidate would you choose?

Available answers: A list of candidates presented in the list, except the candidate selected at the previous question. Only one option can be selected.

- Which candidates do you know personally, of the ones presented from your preferred list?

Available answers: A list of candidates presented in the list. Multiple options can be selected.

Post-electoral survey

The post-electoral survey was administered around ten days after the election day. The participants to this survey were selected among the participants to the first survey who were successfully recontacted. 720 people were successfully recontacted to participate to this survey.

Qualifying questions

- Did you vote during the 10 June 2018 municipal elections?

Available answers: Yes / No. If the participant selected No, then he was automatically discarded from the questionnaire and his answers were not collected.

Understanding of the voting system

- How many preference votes were available in your municipality during the 10 June 2018 elections?

Available answers, with possible selection of at most one answer choice, were

the following: "One (1) preference"; "Two (2) preferences"; Three (3) preferences"; "No preferences at all".

- Now, consider the voting rule employed at current in your municipality. Consider carefully the different filled-in ballots proposed below in the figures. Which of these ballots would be considered valid, based on the existing voting rule in your municipality?

Available answers: In this question, multiple answer choices were possible. The voter was presented with pictures of ballots with different vote combinations (example in figure below). The first option marked under list 1 two preference votes: one for a male candidate and one for a female candidate. This was the correct ballot. Secondly, a ballot with two female candidates of the same list was presented. Third, a ballot with two male candidates of the same list was presented. Finally, a ballot with two candidates of different lists and different genders was presented. The only ballot conforming to the electoral rule (and thus, which in elections would have been considered in its entirety) was the first ballot. Thus, selecting only the first option would have been the only correct choice for this question.

Use of preference votes

- Which list did you vote for in the June 10 2018 elections of your municipality?

Available answers: A list of presented candidate lists in the municipality of choice. Only one answer choice possible.

- How many preference votes did you use?

Available answers: "One (1) preference"; "Two(2) preferences"; "I voted only for my preferred list".

- For which candidates did you use your preference vote within your preferred list?

Available answers: A list of candidates was presented for choices. The number of available choices depended on the number of preferences used, based on the answer to the previous question.

- In case the participant expressed no preference votes: Why did you not use any preference votes?

Available answers: "I am not interested in municipal elections", " I did not have enough information about candidates" "I had information about candidates, but none of them caught my attention specifically" "Other (specify)".

- In case the participant only expressed one vote: Why did you use only one preference vote?

Available answers: "I did not have enough information about additional candidates" "I did not like any additional candidate of a different gender than the first" "I do not agree with the principle of double preference voting" "Other (specify)"

- In case the participant expressed two votes: Why did you choose to employ the double vote of preference?

Available answers: "I voted for my two favorite candidates"; "I want to increase the share of elected women in my municipal council"; "The candidates I voted for campaigned together for the elections"; "I want another candidate of the list NOT to be elected"; "Other (specify)".

Perception of the voting system

The participant is asked to express her degree of agreement with the statements proposed.

- How important is it for you that women are equally represented in your municipal council?

Available answers: Likert scale 1-5, with option "1" meaning "Not important at all" and option 5 meaning "Very important".

- Double preference voting is an efficient method to empower women in politics.

Available answers: Likert scale 1-5, with option "1" meaning "Not in agreement" and option 5 meaning "Strongly agree".

- Double preference voting is not an efficient method to empower women in politics, because it does not influence the choice of mayor in the municipality.

Available answers: Likert scale 1-5, with option "1" meaning "Not in agreement" and option 5 meaning "Strongly agree".

- Double preference voting limits the voter's freedom of choice.

Available answers: Likert scale 1-5, with option "1" meaning "Not in agreement" and option 5 meaning "Strongly agree".

Additional regression discontinuity plots

Share of elected women

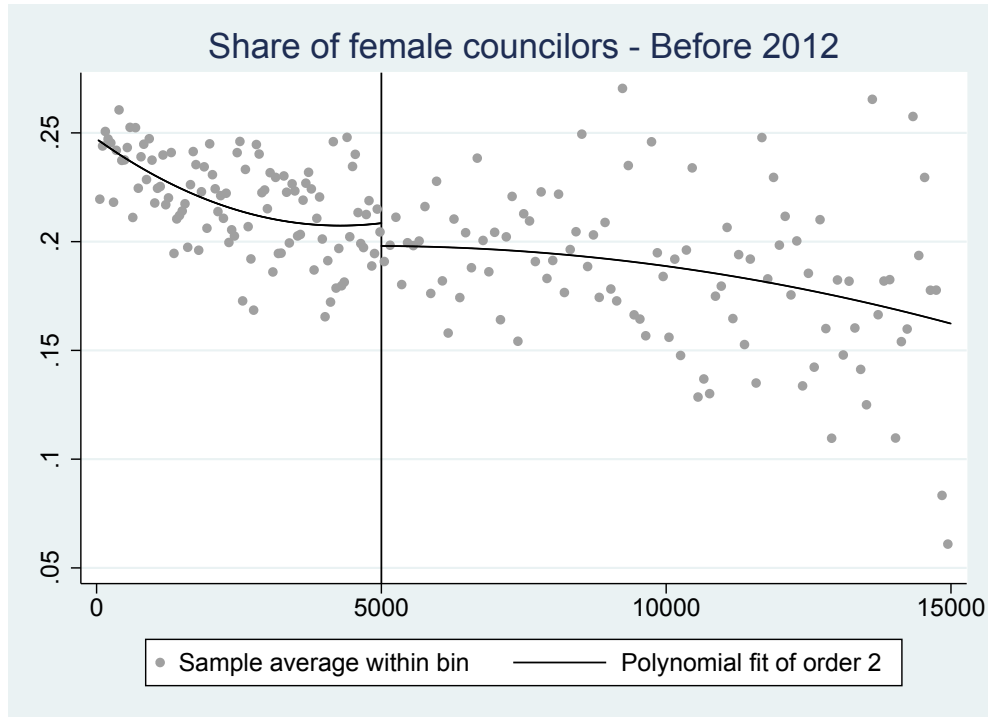


Figure 15: Share of women councilors pre-reform

Notes: The graph plots the binned average of the share of women councilors before the implementation of the reform (before 2012) against the municipality size in population above and below the 5,000 inhabitants threshold. The black line represents the fitted line from a second-order polynomial. The figure contains municipalities with up to 10,000 inhabitants.

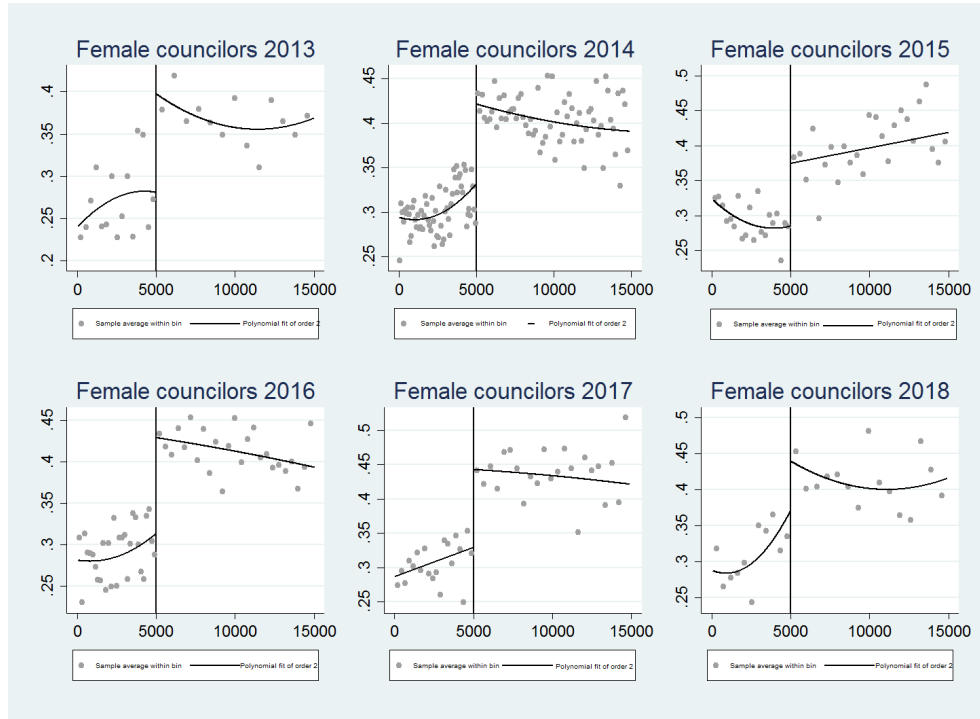


Figure 16: Share of female councilors 2013–2018

Notes: The graph plots the binned average of the share of women councilors before the implementation of the reform (before 2012) against the municipality size in population above and below the 5,000 inhabitants threshold. The black line represents the fitted line from a second-order polynomial. The figure contains municipalities with up to 10,000 inhabitants.

Impact of the policy on educational attainment of elected candidates

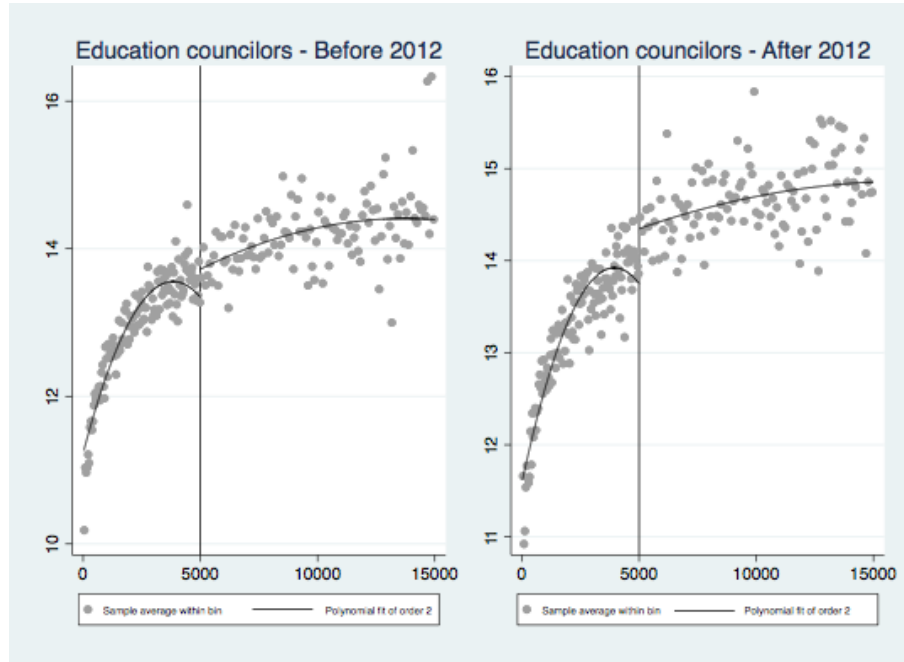


Figure 17: Education of councilors, pre- and post-reform

Notes: The graph represents the average level of educational attainment of municipal councilors in councils, measured in years of education completed. The figure represents the average level for councilors elected after and before the reform for municipalities up to 15000 inhabitants.

Impact of the policy on turnout

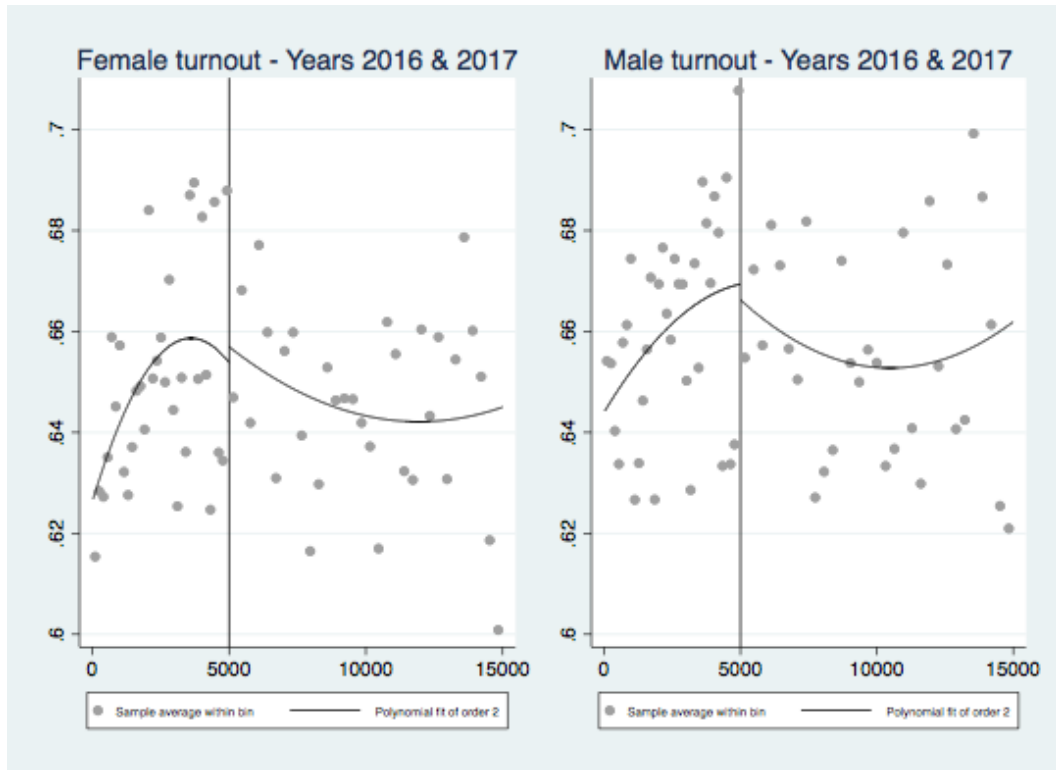


Figure 18: Turnout in elections 2016 and 2017, by gender

Impact of the policy on female mayors

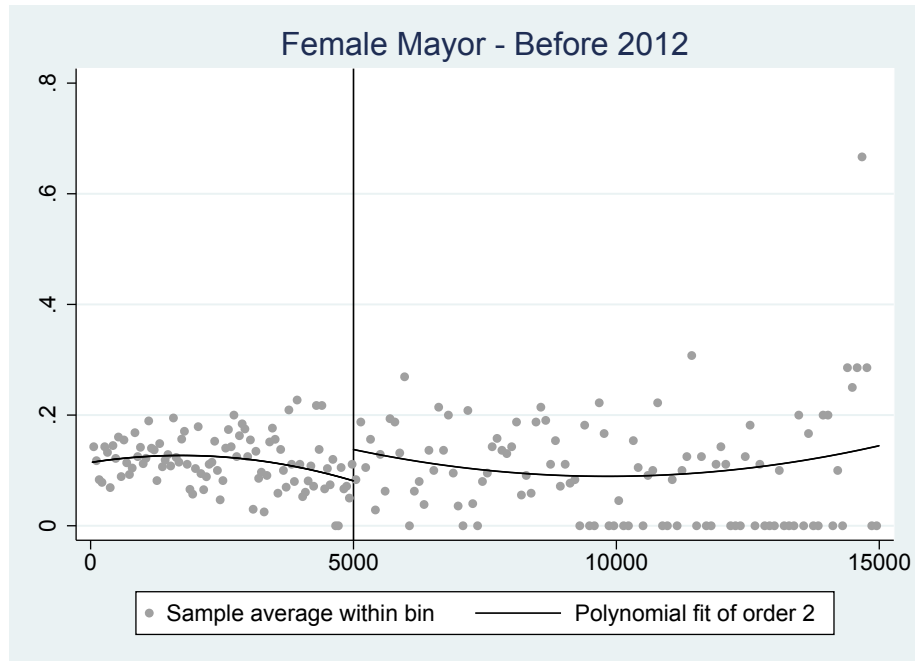


Figure 19: Women mayors before the reform

Electoral Survey

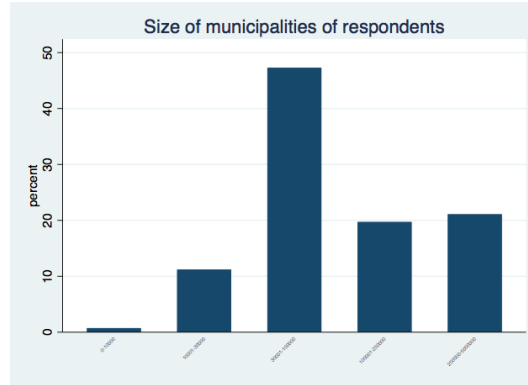


Figure 20: Survey participants by size of their municipality

Notes: The graph shows the relative shares of survey participants belonging to a class of municipalities, by size. Most survey participant belong to municipality that has between 30,000 and 100,000 inhabitants.

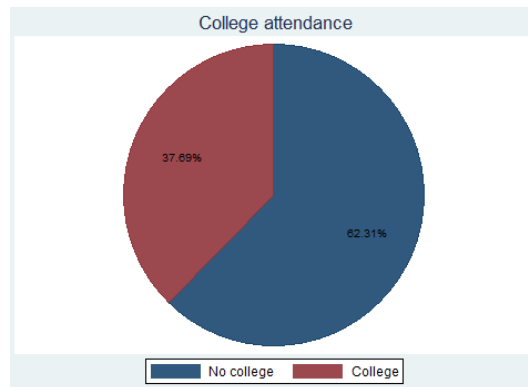


Figure 21: Educational attainment of survey participants

Notes: The graph shows the share of respondents to the electoral survey who have completed a college degree of the total number of survey participants. The data is based on the profile information of survey participants.

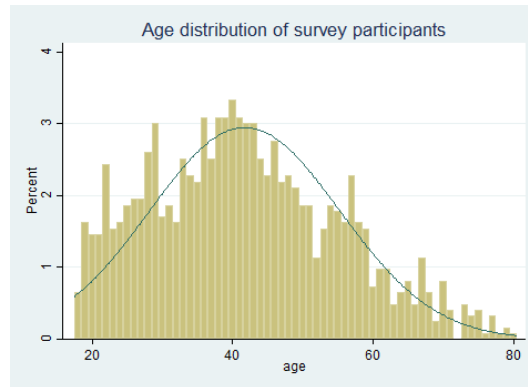


Figure 22: Age distribution

Notes: The graph shows the distribution of age of respondents to the electoral survey. The data is based on the profile information of survey participants.

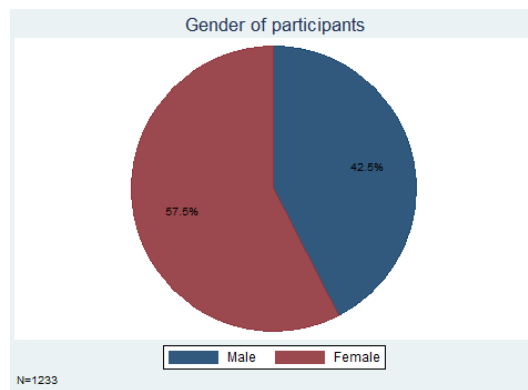


Figure 23: Gender of participants

Notes: The graph shows the gender of participants to the electoral survey.

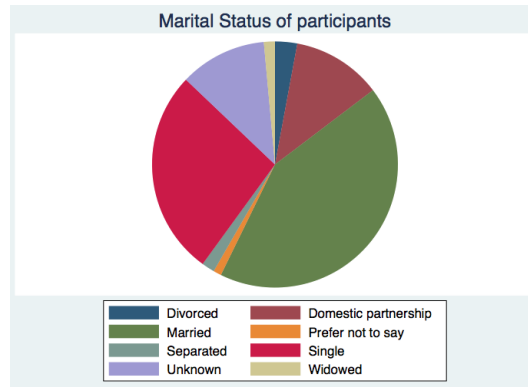


Figure 24: Marital status of survey participants

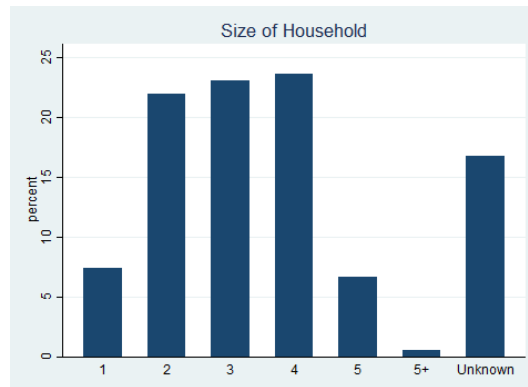


Figure 25: Household size of survey participants

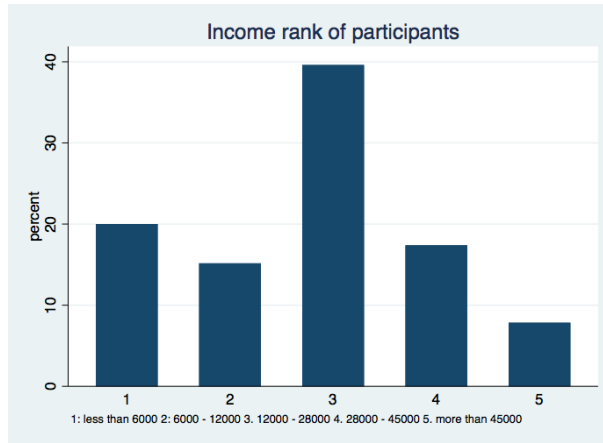


Figure 26: Income class of participants

Notes: The graph shows the share of respondents to the electoral survey who belong to each income class. Most survey participants earn between 12.000 and 28.000 euros per year according to the personal information recorded in the survey provider's database.

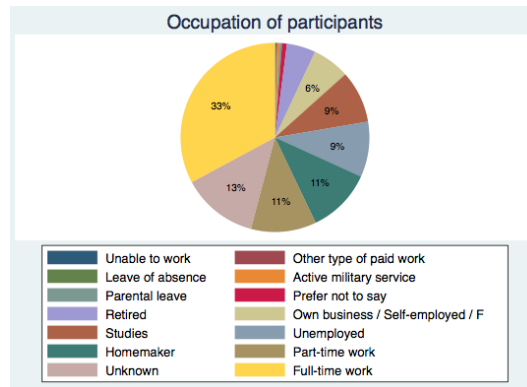
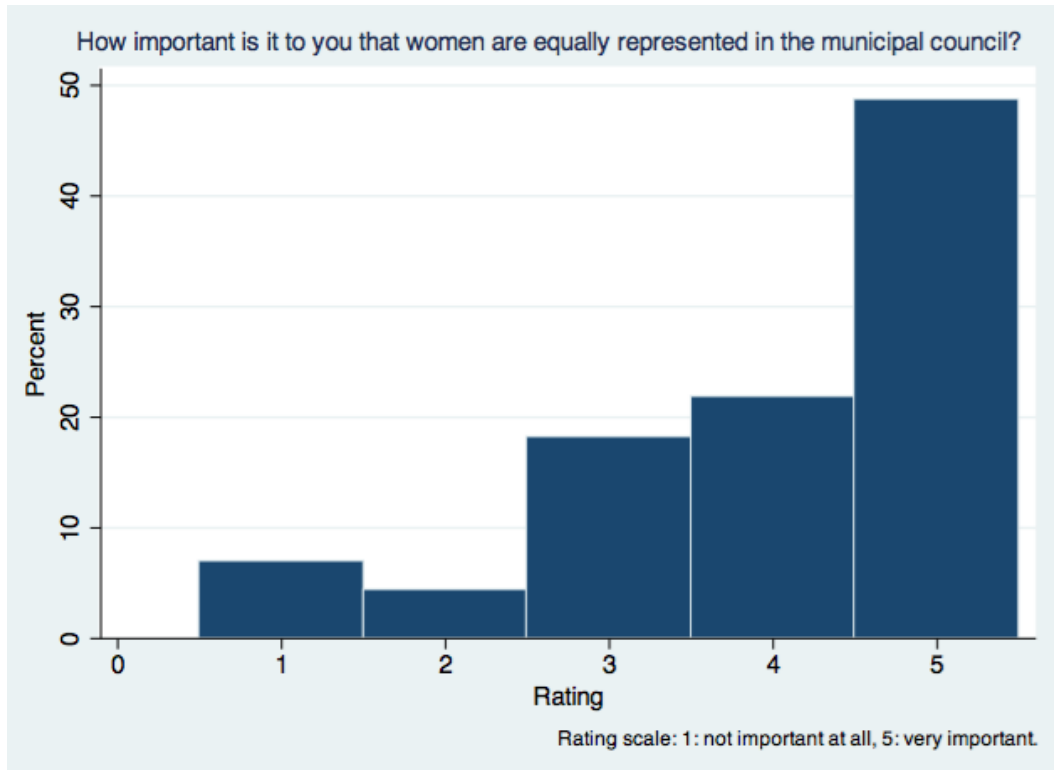


Figure 27: Occupation of participants, by type

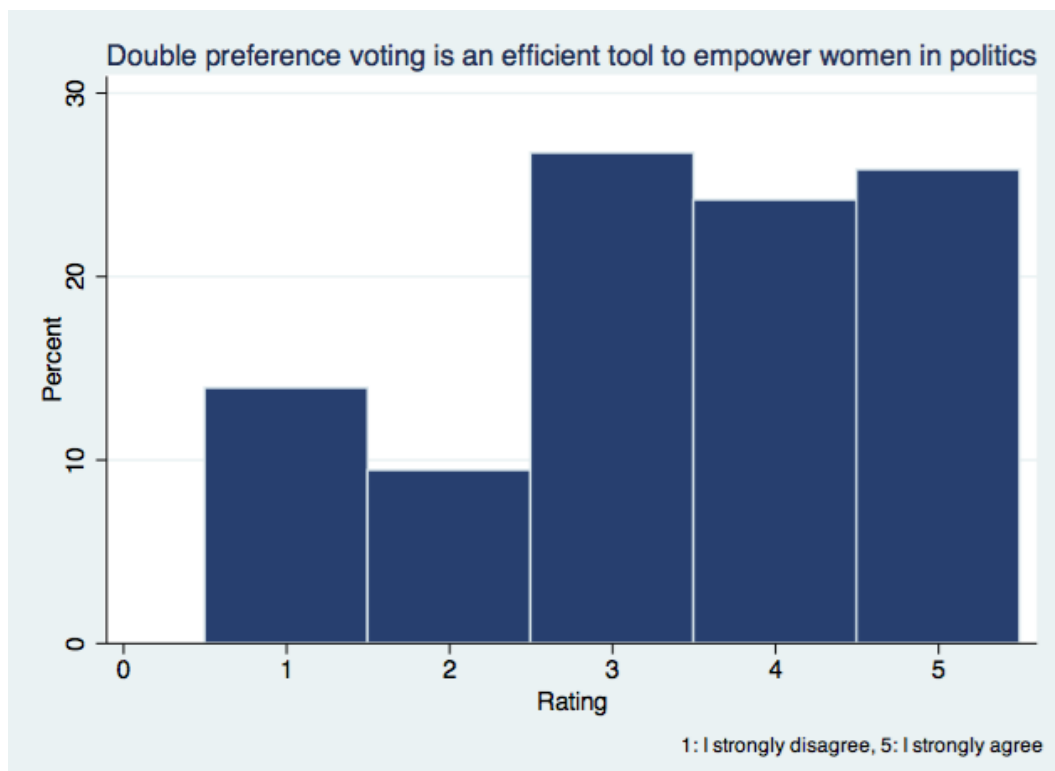
Notes: The graph shows the share of respondents to the electoral survey who belong to each occupation class. Most survey participants were full-time workers.

Perception of the voting system



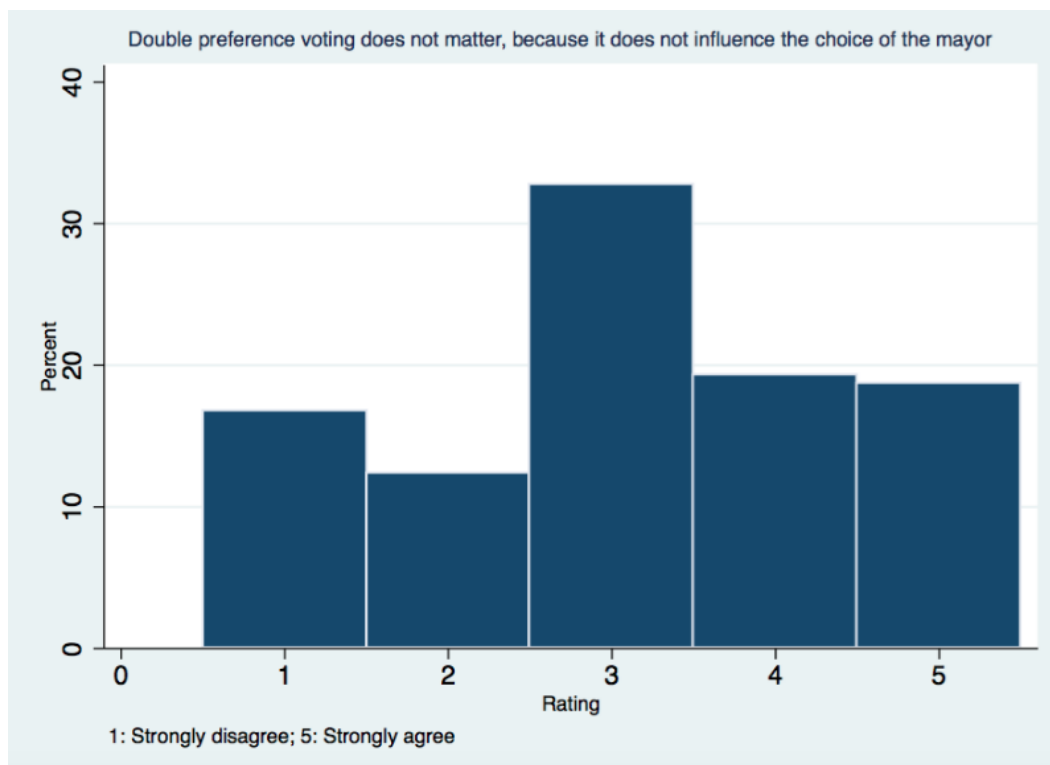
How important is it to you that women are equally represented in your municipal council?

Notes: The graph shows the share of voters who gave a particular score in the Likert scale to the statement. A Likert score of 1 means that the voter finds equal representation unimportant, a score of 5 expresses the voters' highest support for the statement.



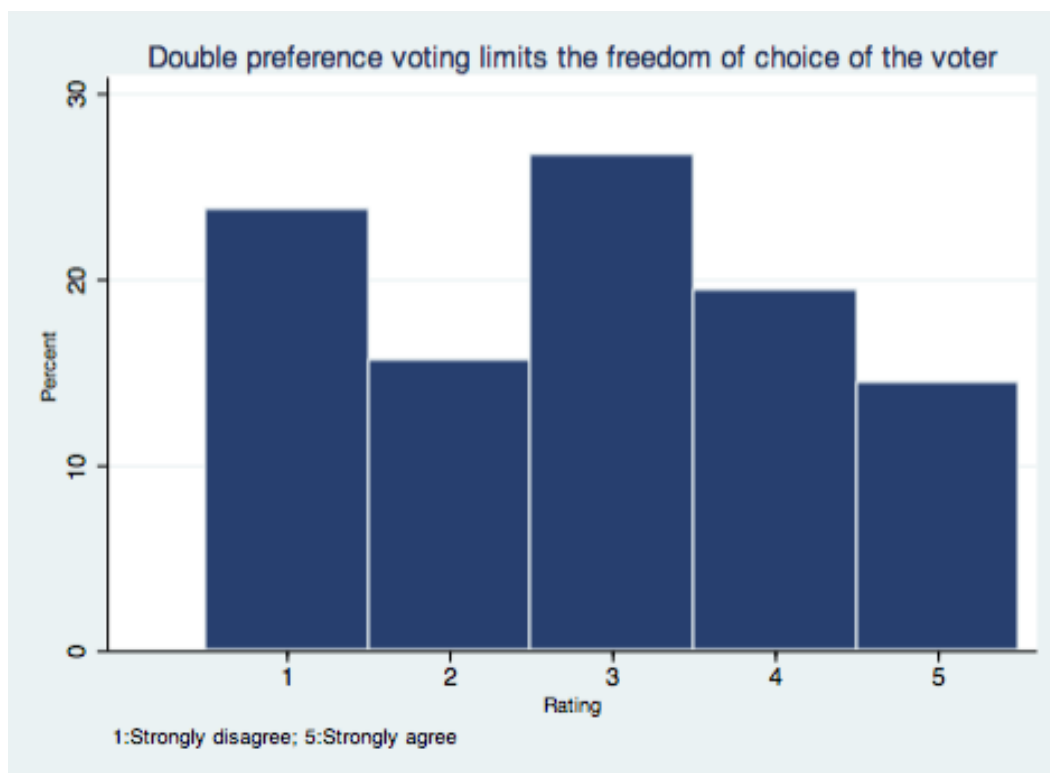
”Double preference voting is an efficient tool to empower women in politics”

Notes: The graph shows the share of voters who gave a particular score in the Likert scale to the statement. A Likert score of 1 means that the voter completely disagrees with the statement, a score of 5 expresses the voters' highest agreement with the statement.



”Double preference voting is not an efficient tool to empower women in politics because it does not affect the choice of mayor”

Notes: The graph shows the share of voters who gave a particular score in the Likert scale to the statement. A Likert score of 1 means that the voter disagrees with the statement, a score of 5 expresses the voters' highest agreement with the statement.



”Double preference voting limits the freedom of choice of the voters”

Notes: The graph shows the share of voters who gave a particular score in the Likert scale to the statement. A Likert score of 1 means that the voter completely disagrees with the statement, a score of 5 expresses the voters’ highest agreement with the statement.